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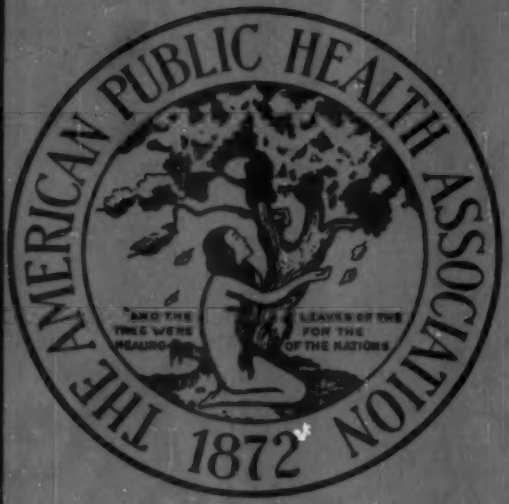

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1. Odell, W. M.: Nutrition in Cardiovascular Disease, in Wohl, M. C., and Goodhart, R. S.: Modern Nutrition in Health and Disease, Philadelphia, Lea & Febiger, 1955, p. 689.
2. Bills, C. E.; McDonald, F. G.; Niedermeier, W., and Schwartz, M. C.: Sodium and Potassium in Foods and Waters, J. Am. Dietet. A. 25:304 (Apr.) 1949.

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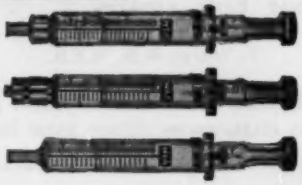

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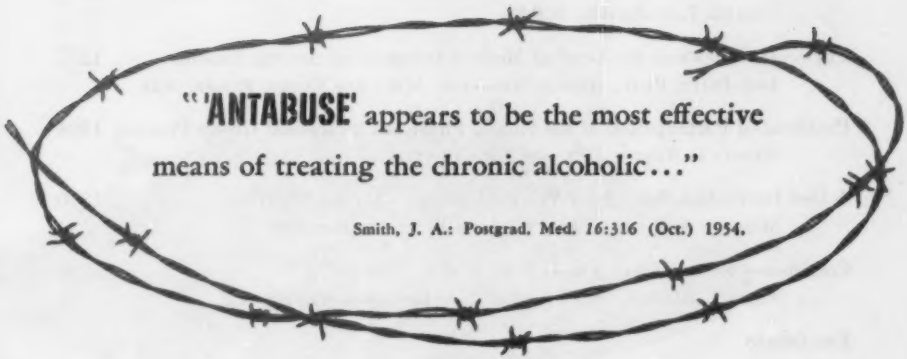

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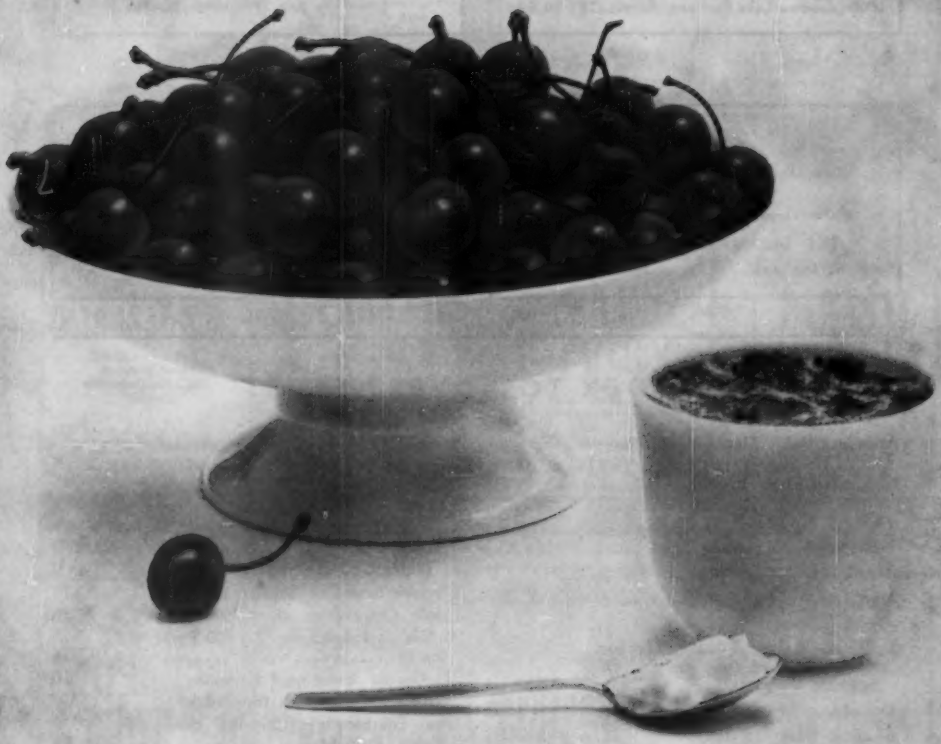

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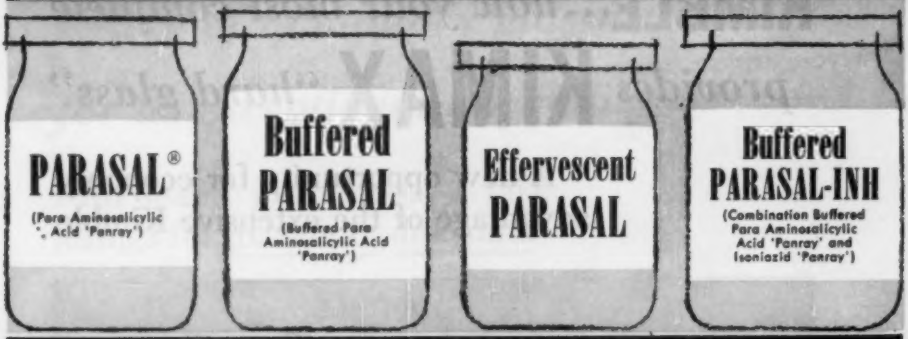

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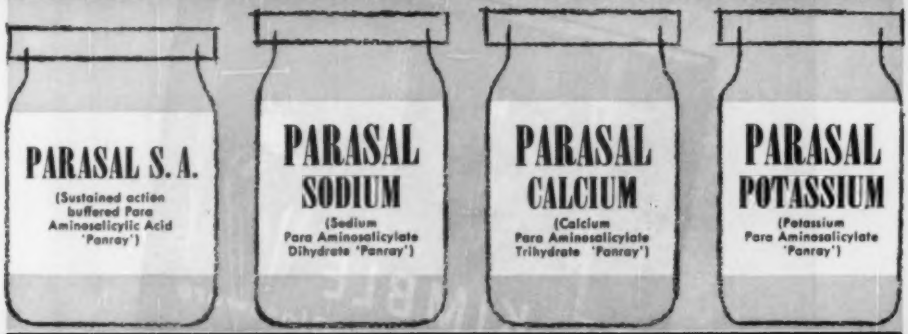

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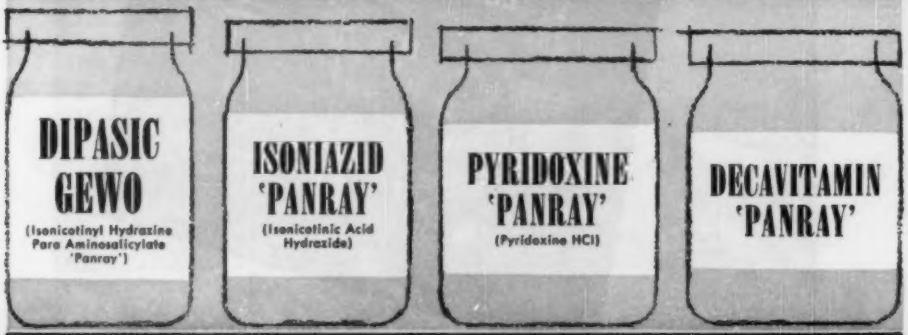

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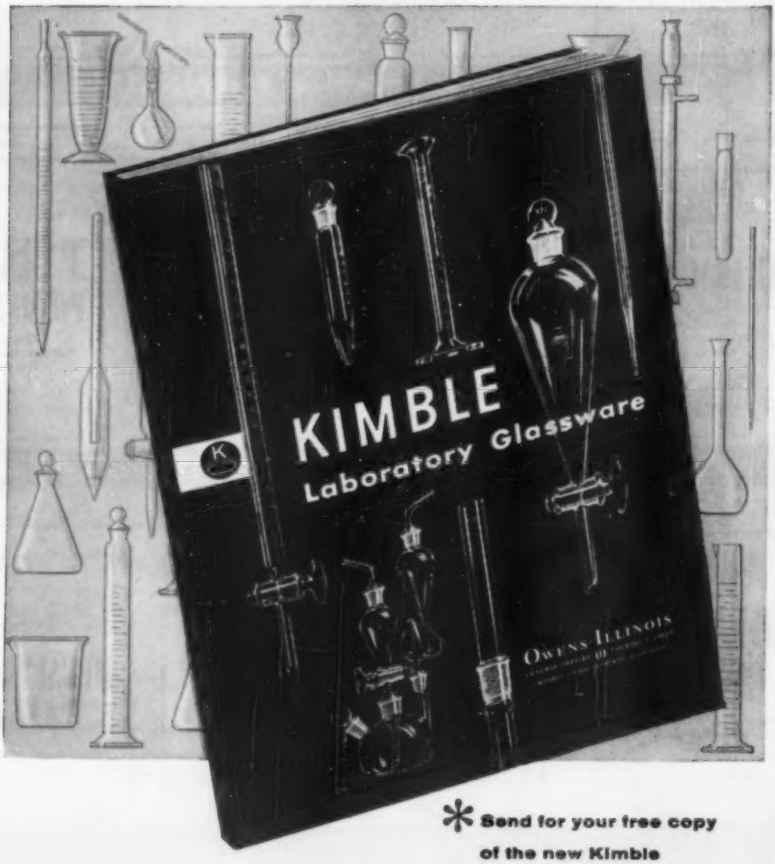

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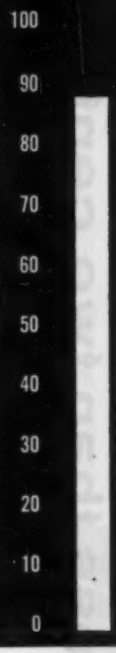

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Composition and Action. A pale yellow, oil-soluble substance, vitamin A is expressed in the chemist's shorthand as $C_{20}H_{29}OH$. It is necessary in the diets of men and animals to promote the body's growth and development. Vitamin A is a vital requirement in guarding the health of the eyes and skin, and for resistance against infection. It helps maintain the health of mucous membranes and other specialized epithelial and glandular tissues.

Vitamin A enters the body as a constituent of food. Or it may be created within the body when a precursor of vitamin A is eaten. A precursor is a food element with potential vitamin A *value* but no actual vitamin A *content*. For instance, many green leaves have a high vitamin A value but, paradoxically, contain no actual vitamin A. The body converts the precursor into the vitamin. The most common precursor of vitamin A is beta carotene, the natural yellow coloring of many foods, such as dairy products, cereal grains, carrots, alfalfa, etc.

When consumed in food vitamin A is absorbed primarily in the healthy intestine, is esterified in the intestine's walls and is carried as an ester in the lymph and blood to the body's storage depots. The liver, which has a large capacity for storage, contains about 90% of the vitamin A found in the body.

Isolation and Synthesis. It was not until 1937 that pure, crystalline vitamin A was isolated by Holmes and Corbett from fish-liver oil. Research in the synthesis of vitamin A was stimulated during the Second World War by the threat to natural sources in fish-liver oil. This work resulted in several processes to produce vitamin A synthetically. Of these, one of the most successful was evolved by the Roche research team headed by Dr. Otto Isler which was announced in 1947. Much of the vitamin A now used for pharmaceutical manufacturing and food fortification in the United States and many other countries of the world is produced by this process.

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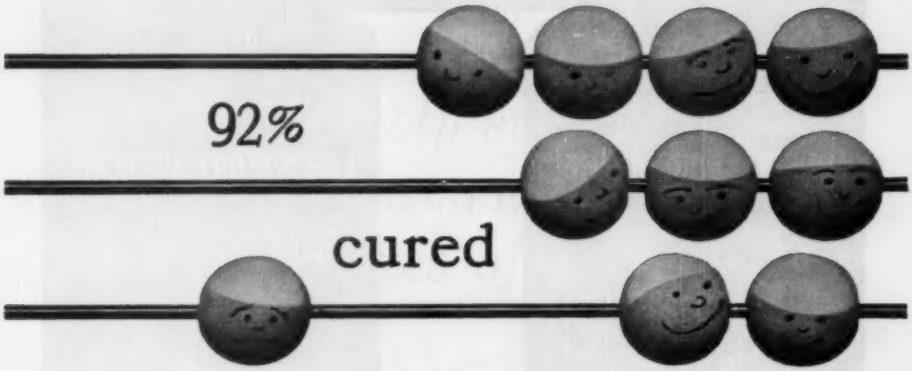

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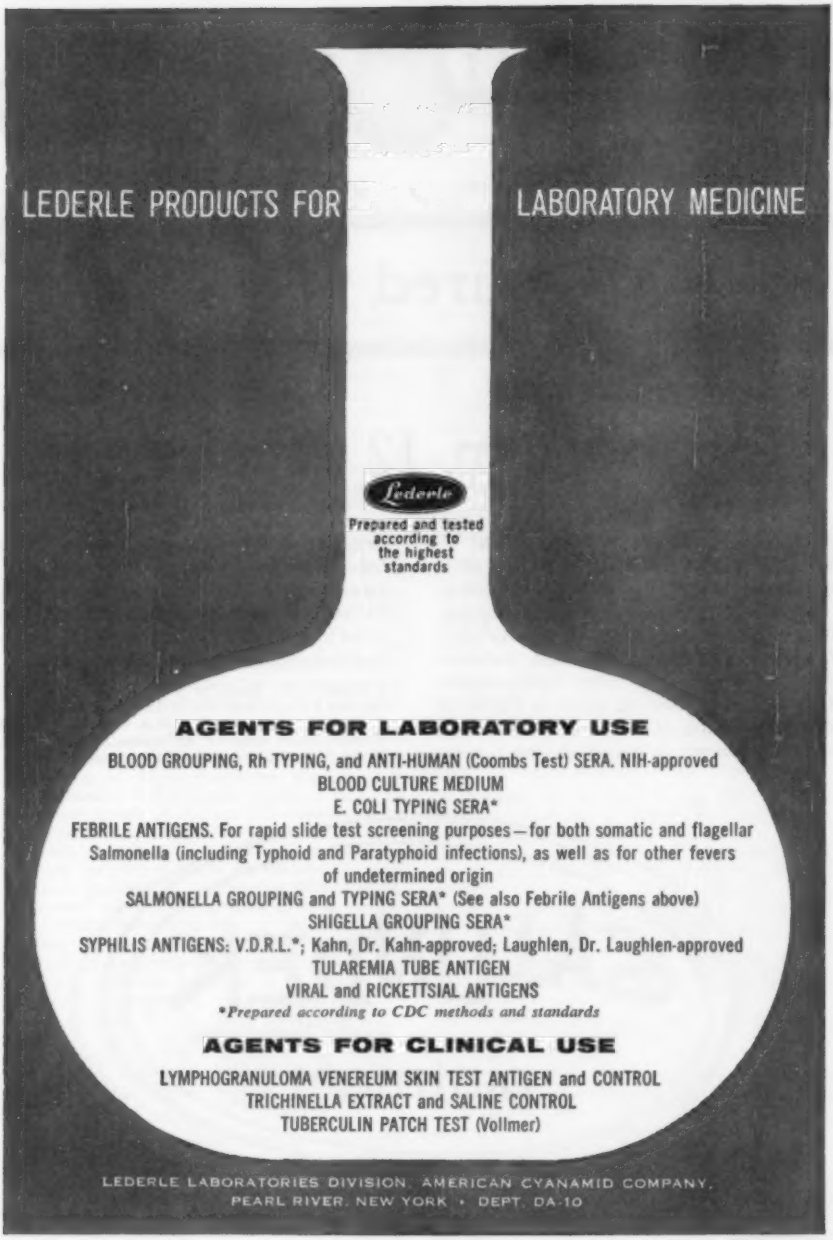
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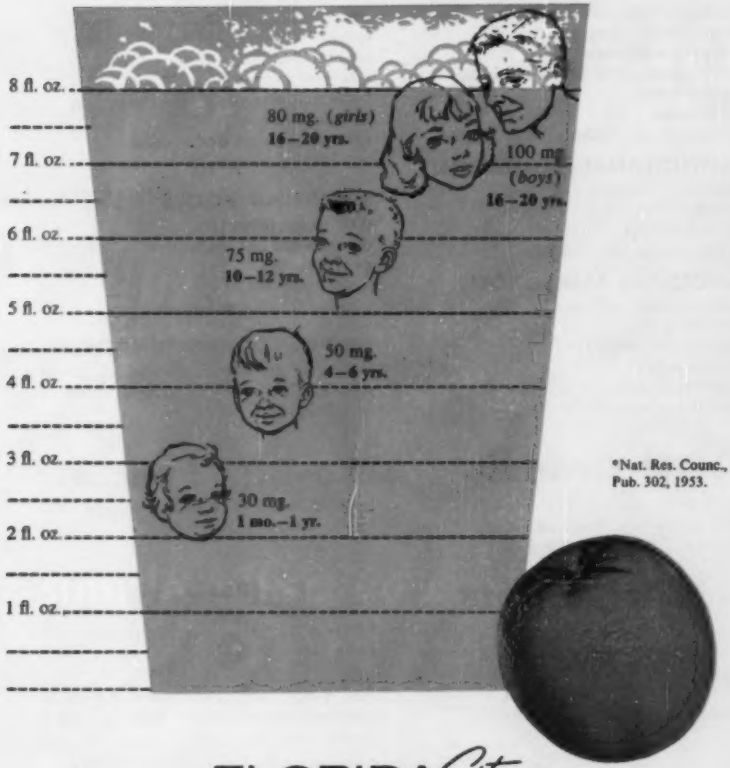

*Nat. Res. Counc., Pub. 302, 1953.

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Bowes, A. deP., and Church, C. F.: Food Values of Portions Commonly Used. 8th ed. Philadelphia: A. deP. Bowes, 1956.
Cereal Institute, Inc.: The Nutritional Contribution of Breakfast Cereals. Chicago: Cereal Institute, Inc., 1956.
Hayes, O. B., and Rose, G. K.: Supplementary Food Composition Table. J. Am. Dietet. A. 33:26, 1957.

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1. J. Lab. & Clin. Med., *45*:679, 1955.
2. Bull. World Health Organ., *10*:823, 1954.

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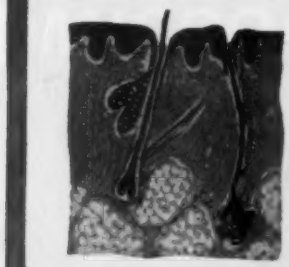

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References:
1. Hansen, A. E.; Adam, D. J. D.; Boelsche, A. N.; Haggard, M. E.; Wiese, H. F.; Pratt, E. L., and Hunter, V.: Fed. Proc. *16*:387, Part I (March) 1957.
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3. Hansen, A. E., and Burr, G. O.: J. A. M. A. *132*:855 (Dec. 7) 1946.

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Volume 47 October, 1957 Number 10

How Much Control of Tuberculosis: 1937–1957–1977?

FLOYD M. FELDMANN, M.D., Dr.P.H., F.A.P.H.A.

Twenty years ago Wade H. Frost pointed out that the tubercle bacillus was losing ground and "that the eventual eradication of tuberculosis requires only that the present balance against it be maintained." Two decades have now elapsed, and one may ask: How valid was Frost's analysis of the situation? Has his prediction proved to be consistent with our experience? Dr. Feldman takes a good hard look at these questions, and makes an educated estimate of what the tuberculosis problem will look like in 1977.

"We need not assume, then, that tuberculosis is permanently and ineradicably engrafted upon our civilization. On the contrary, the evidence indicates that in this country the balance is already against the survival of the tubercle bacillus; and we may reasonably expect that the disease will eventually be eradicated." So spoke Wade Hampton Frost at a meeting of this organization on May 12, 1937, just 20 years ago.[1]

Frost's significant conclusion was reached, not by a superficial examination of the declining death rate, but by a careful evaluation of many pieces of evidence. The central theme of his reasoning is deceptively simple. As stated in his words, "for the eventual eradication of tuberculosis it is not necessary that transmission be immediately and completely prevented. It is necessary only that the rate of transmission be held permanently below the level at which a given number of infection spreading (i.e., open) cases succeed in establishing an equivalent number to carry on the succession. If, in successive periods of time, the number of infectious hosts is continuously reduced, the end-result of this diminishing ratio, if continued long enough, must be extermination of the tubercle bacillus."

Frost drew attention to the fact that tuberculosis differs from many other

Dr. Feldmann is medical director, National Tuberculosis Association, New York, N. Y.

This manuscript was invited by direction of the Editorial Board of the American Journal of Public Health. It was presented at the Joint Session of the State Charities Aid Association, State Committee on Tuberculosis and Public Health and the New York Trudeau Society, Hotel Statler, New York, N. Y., May 27, 1957.

communicable respiratory diseases in that the tubercle bacillus must penetrate below the surface to multiply and must then escape to external air passages to produce new infections in other individuals. Fortunately, only a small proportion of infected persons develop open lesions, a fact which makes isolation of these few an effective procedure.

In 1937 there was already convincing evidence that the cycle, open cases—new infections—open cases, was not being maintained. The death rate for the United States in 1933 was only one-third of the rate in 1900 and in the absence of a specific treatment it was reasonable to assume a proportionate decrease in the prevalence of open cases. Although infection rates in cities were still high, over 50 per cent at age 15 and nearly 100 per cent over age 30, there had obviously been some reduction.

An important point was the probability, supported by experiments with animals and epidemiologic evidence "that infection established by a small number of microorganisms may be less severe in its course than infection resulting from a large or frequently repeated dosage." Thus "the frequency of exposure to the tubercle bacillus may have been reduced much more than would appear to be indicated by the results of tuberculin tests."

Frost interpreted these observations to mean "that under present conditions of human resistance and environment the tubercle bacillus is losing ground and that the eventual eradication of tuberculosis requires only that the present balance against it be maintained." He then discussed the two forces which might check or reverse the downward trend of tuberculosis. These were: (1) a decrease in human resistance to the disease, or (2) some fundamental change in the tubercle bacillus. For good reasons he thought both possible but unlikely.

It is now 20 years later. Has Frost's analysis of the situation proved to be consistent with our experience? The answer, in my opinion, is Yes.

The mortality rate has continued to decline, and this decline has been accelerated since about 1947 when specific antimicrobial therapy was introduced. However, the continued decline at approximately the same rate to 1947 and the greater drop after that time is consistent with a further natural decline in the number of open cases with an additional mortality rate decrease in later years due to effective drug therapy. This obvious reduction in case fatality has made further use of the death rate unreliable as a measure of case incidence and prevalence.

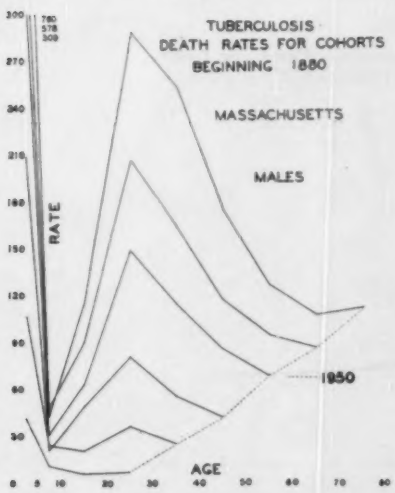
The continuing small but consistent decrease in official tuberculosis case reports, despite increased case-finding efforts, is further evidence that the balance is still against the bacillus. Coupled with this is the constantly decreasing yield of active cases discovered on x-ray surveys of adult groups.

A more immediate indicator of the current trend in tuberculosis is the rate at which new infections are taking place. Tuberculin tests have been performed with different technics, varying dosages, and differing degrees of precision, so that direct comparisons are risky. Nonetheless, the rates now being reported are so much lower at all ages than was common in 1937, there can be no doubt that the reduction is real and substantial. The average infection rate in Navy recruits at present is 3.5 per cent.[2] This may be compared with a rate of 9.1 per cent in the years 1949–1951.[3] The results of scattered tuberculin tests in adult groups seem to show a peak at ages 60 to 70 with 60 per cent positive. Some investigators have surmised that new infections in many parts of the country are now taking place at the extremely low rate of one per 1,000 persons per year.[3]

Surely these trends confirm the premise of Frost's thesis in 1937. The mortality rate then was 43.4 per 100,000, for 1956 it is estimated at 8.5. The rate for all newly reported cases then was about 87 per 100,000 population and is now about 40 for new active cases alone. More important, it appears that no more than 5 per cent of our 15-year-old children are now infected as compared to the 50 per cent cited by Frost.

In the light of these data let us take a tentative and speculative look at the future. Fortunately we have some guideposts denied to Frost. Crude as they are, recent observations seem to conform to a pattern, and conjectures of 20 years ago are beginning to look more like facts. When infection with tubercle bacilli was practically universal the relationship between the time of infection and the time when active clinical disease developed was difficult to establish. While it had frequently been noted that disease often developed without apparent opportunities for new infection, there were few long-term studies of well defined groups which could determine the rates of disease development by sex at various ages. Frost's genius threw a bright light on this question. In an article entitled "The Age Selection of Mortality from Tuberculosis in Successive Decades," published posthumously in 1939,[4] he demonstrated conclusively that the age-specific death rates for any one group of people from birth onward followed a distinctive pattern. Figure 1 for males only, using his basic data from Massachusetts brought up to date, illustrates the point. The curve is always extremely high in infancy, low at age 10, reaches a peak about age 20 to 25, and declines thereafter. As the gross mortality rate declines the curves become lower but the shape remains the same. The figure for females has the same general appearance but the rates are higher than the male rates before ages 25 to 30 and lower afterwards.

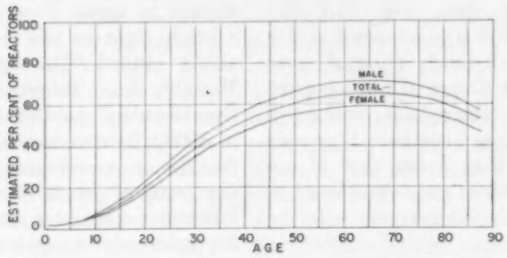
Figure 1



There is another way to approach this age selection factor using current data on tuberculin test results and case reports rather than mortality figures. By plotting the age-specific percentages of tuberculin reactors from various studies in the United States it is possible to derive a smoothed age curve which represents a gross approximation to the situation in the United States for the year 1952 (Figure 2).

Age-specific rates for new cases are also reported and if we assume that all new cases at any one age came from the tuberculin reactors at that age, it is possible to calculate a case rate based on the number of reactors. If this is done a new curve results (Figure 3). The similarity of this curve to those in Figure 1 is striking. While keeping in mind that the former is based on mortality rates and the latter on morbidity rates, certain deductions seem warranted. First, if a person is infected his risk of developing active disease varies with some unknown factor or fac-

Figure 2—Estimated Percentage of Tuberculin Reactors by Age and Sex: United States, 1952 *

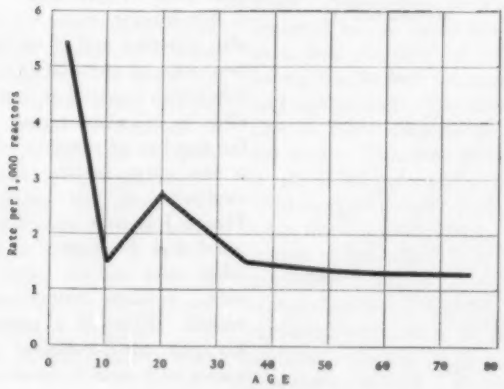


* Estimates of Tuberculin Reactors Prepared by NTA on Basis of Data from Florida, Michigan, Minnesota and Texas.

tors closely associated with age and sex. Second, the seemingly paradoxical present-day peak of morbidity in late life does not represent an increasing risk with age but is a reflection of a higher prevalence of infection which in turn is the residual of higher rates in earlier times. Third, since decreasing infection rates are mirrored in morbidity rates many years later in life, it is difficult to escape the conclusion that endogenous or old infections must be the major source of new active cases. This has also been noted in some recent direct observations.[5, 6] Fourth, as new infections in childhood have decreased, the morbidity and mortality in each generation as it went through life has also decreased, indicating that the decrease in childhood infection did not lead to any important lack of immunity later. In somewhat different order, these same points had been made by Frost on the basis of his mortality analysis alone.

Fortunately, we can now go a step further. In deriving the curve in Figure 3 some rates come to light. Considering the roughness of the data and the assumptions necessary for these calcula-

Figure 3—New Active Tuberculosis Cases per 1,000 Reactors, by Age: United States, 1952



tions, one cannot be too confident about the accuracy of these rates but some direct short-term observations fall in the same range and are to that extent confirmatory.[5, 7, 8] The new case rate per year per 1,000 infected persons at ages 15 to 30 seems to lie somewhere between one and three, with a rapid decline to a more constant rate between one and two as age increases.

It would be reasonable to expect that these rates will vary widely in accordance with differences in nutrition, intensity of infection, degree of tuberculin sensitivity, prophylactic measures and other factors. More field studies are urgently needed if we are to use information of this kind for control purposes, or for a better understanding of the remaining tuberculosis problem.

Given a few such estimates, speculation as to the future is tempting. It seems reasonable to assume that new cases now come from the total number of persons who have live tubercle bacilli in their bodies during any given time period. Since the new infection rate is extremely low this means that most of the new cases will come from that segment of the population already tuberculin-positive. It also seems to be accepted, if not too well established, that very few who are presently tuberculin reactors will become nonreactors in the future. If these assumptions are correct, we can approximate the age curve of tuberculin reactors in 1977 by moving the curve in Figure 1 just 25 years to the right and raising it slightly to account for new infections (Figure 4). In line with numerous observations it also seems reasonable to taper off the rates in the older age groups. We will have lost through death a considerable number of infected persons in the high rate older groups, but the reactor rates will still be high in the remaining older persons. The per cent of reactors in the younger ages will be much less, particularly around the ages 15 to 30 where the risk of developing active disease is high. The net result then will be a shift of the bulk of reactors to the ages over 45 where the risk of progression to active disease is lower, and a decrease in the total number of reactors. Theoretically, this should result in an initial rapid fall in the incidence of new cases, with a slower decrease later on when most of the reactors will be passing through the ages after 45 where the risk of developing disease continues at about the same level.

By arithmetic methods it is possible

Figure 4—Estimated Percentage of Tuberculin Reactors, by Age: United States, 1952 and 1977

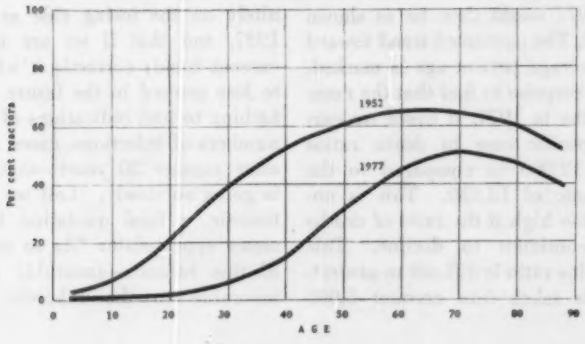
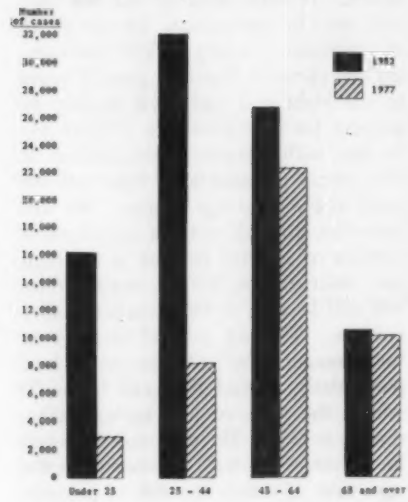


Figure 5—Number of New Active Tuberculosis Cases, by Age: United States, 1952 Actual and 1977 Estimate



to calculate rates for the year 1977 if some of the above estimates of current rates are used and certain assumptions made as to their stability over a 20-year period. This has been done in the Social Research Division of the National Tuberculosis Association as "an exercise in theory" with the following results. In 1977 the number of tuberculin reactors will be 33,000,000, and the number of new active cases reported that year will be 44,000. As compared to 1957, the age distribution of new cases in 1977 might then be as shown in Figure 5. The continued trend toward an older average patient age is marked.

It was a surprise to find that the number of deaths in 1977, if based on current age-specific case to death ratios would be 12,000 as compared to the 1956 estimate of 13,810. This is undoubtedly too high if the ratio of deaths to cases continues to decline. This decline of this ratio is difficult to project, but if it is taken into account 5,000 deaths would be a better guess. However, a flattening of this ratio and of the mortality rate decrease is already evident and therapy now in use is known to be less effective in older patients. Perhaps a smaller decrease in the mortality rate from now on is not so unreasonable.

At this point a large "Warning" sign must be posted. These figures are not to be taken as predictions, but only as an instance of the kinds of analyses which might be possible if good reliable data were at hand.

From a more practical point of view it appears likely that further momentous advances will be made in the next 20 years and that the assumptions made in this paper will be subject to major revisions. New prophylactic measures, or better screening tests, could accelerate the decline of reactor rates and case rates to a phenomenal degree. However, desirable as a more effective treatment for active cases would be, improvements in therapy would probably not bring about any marked reduction in the incidence of new cases for the reason that most of our new cases now are coming from persons already infected and not from the few persons being infected by the current active open cases.

Yet entirely aside from these interesting and, I hope, significant speculations we can say with some confidence that the tubercle bacillus is still definitely on the losing side as it was in 1937, and that if we are interpreting current trends correctly it will continue to lose ground in the future. It is disturbing to find indications of such large numbers of infections, cases, and deaths after another 20 years—that the battle is going so slowly. Lest we be too optimistic, a final quotation from Frost seems appropriate: "As to maintenance of this balance—favorable to us, unfavorable to the tubercle bacillus—

there are, of course, elements of uncertainty, among them uncertainty as to the stability of our civilization."

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Training Course in Housing Quality Appraising Technic

The next training course in the American Public Health Association technic for appraising the quality of housing will be given by the Communicable Disease Center, October 21–November 22. The course is designed for public health personnel, city planners, urban renewal agencies, and building inspectors, with particular reference to the hygiene of housing.

Because of the rapidly increasing number of cities engaged in urban renewal activities and the resulting need for training programs in state and local areas, priority for this course will be given to trainees whose agencies can repeat the course on a local basis. Assistance in conducting local courses will be given by the Center.

In the more than ten years since the first of the three APHA volumes outlining a method for appraising the quality of housing was published, the Communicable Disease Center has had frequent courses in the technic which have given wide currency and acceptance to the methodology developed by the APHA Committee on the Hygiene of Housing.

Future Explorations in Mental Health and Disease

BENJAMIN PASAMANICK, M.D., F.A.P.H.A.

This is the third of three stimulating contributions to the public health approach to mental health which, together, constitute a sound and practical guide pointing the direction that exploratory ventures in this newest of public health programs may profitably take.

The title of the assigned subject is so broad and capable of interpretation in so many different fashions that almost inevitably our set will shift from one frame of reference to another as discussion progresses. For instance, it is obvious that the theme can shift imperceptibly from explorations which should be made to those which will be made, that is, from a discussion of research to prediction of things to come. These are obviously not independent areas, and an audience like this need not be warned to beware of prophets. In any event, I stake my reputation as a seer only on those items predicted to occur fifty or more years from today.

It is very tempting to enter upon an analysis of the historic, social, economic, cultural, and political forces whose interplay has brought us to our present status in mental health and which will mold the future. I hope to resist this temptation except to point out two recent trends with major implications for research in the future and which undoubtedly will continue. These are, first and foremost, the unprecedented appearance of funds for research and, second, the long expected, eagerly awaited, widespread emergence of scientific method into medical and psychiatric education. The two are probably not unrelated in origin and without doubt will have enormous effect upon each other. The concept that ready availability of large amounts of money, immediately and with indefinite prospect as stimulation for research and the consequent entrance of investigators into a field so fertilized is certainly not new. The case history of poliomyelitis research as an example of delimited, well planned pouring of money into a field with comparatively quick and enormously profitable results will never be forgotten. The concept that, if necessary, large sums must be wasted on initially barren ground in order to create eventually the topsoil necessary for healthy and continued growth is beginning to take root. It is extremely hopeful to see the remarkable acceptance of this principle among the lay public and its voice in governmental bodies.

Medicine and public health, which are primarily social institutions and not scientific disciplines, although hopefully based upon an integration of various sciences, are experiencing a renaissance and reaching for new and generalized acceptance of scientific method for their practitioners. This will eventually produce the individuals who will be capable of using the money. For instance, looked at in one way, it is shocking to learn that only half the medical schools in this country have statisticians on their faculties and offer some statistics to their students. However, looked at from the optimistic viewpoint, this is exceedingly promising for the future as an indication of acceptance of meth-

odologies and badly needed trained personnel. It is a beginning of the cracking of the hard shell of dogma in medicine. We are on the way.

It is impossible to use one frame of reference to order widely disparate spheres of investigation and so, if I jump from one to another and omit many, I hope you will concede the difficulties and limitations. I thought it might be least confusing if I proceed temporally as much as possible and begin with the individual prior to conception and end with senility instead of hopping about from discipline to disease entities.

Using this outline then, it might be best to plunge into a discussion of genesis, the genic relationships of mental health, and genetics as the discipline involved. There has recently been a good deal of heart-searching among serious students of human genetics whose studies have been almost wholly epidemiologic in nature when it became apparent that the genetic model used for most of their investigations was largely post hoc in nature. Hereditary theories of the etiology of mental disorders based on familial or twin studies are now being held in abeyance until the experimental evidence will be forthcoming either to support or destroy these theories. Probably most, if not all, mental diseases that may be of hereditary origin have already been studied epidemiologically. One after another they have been removed from the area of genetic causation; pellagra, which Davenport forty years ago showed to fit the genetic model, is a case in point. Familial aggregation of a disorder is obviously only the beginning of genetic investigation. The cellular chemical mechanisms, largely enzymatic in nature, must be demonstrated before we can accept hereditary mechanisms. Phenylpyruvic oligophrenia may very well prove to be the paradigm for studies in this area. Not only do we have the family studies, but we know a good deal of the mechanism of the inborn error in metabolism involved. If we can show, as we have done in one or two other hereditary disorders, that the heterozygous carriers of the trait have lowered thresholds to overloading by the specific metabolite involved, we have not only further evidence of the hereditary constitution of the illness, but an eventual method of prevention of the disease by identifying the carriers and advising against mating. Further, in the same disorder—and the evidence points in this direction—early identification and elimination of the metabolite that cannot be managed, or possibly by the administration of the metabolite in a step beyond that which cannot be undertaken by the individual involved, raises hope for the disappearance or practical control of the symptoms of the disorder. In human genetics, as in many of the fields, where experimental evidence is difficult or impossible to secure, the crucial experiment on causation may very well lie in prevention.

In the enormous area of mental retardation, in view of the overwhelming evidence of prenatal factors in organic etiology, and sociocultural factors in psychologic causation, I very much doubt that, except for a few rare clinical entities such as the phenylpyruvic oligophrenia, genetic investigations will offer much help. On the other hand, in such major disorders as schizophrenia, manic-depressive psychosis, and possibly even the disorders of old age, genetic mechanisms may be of primary importance. In view of what has already been said, it would seem gratuitous to

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have to point out that a disease of hereditary origin or with hereditary predisposition is not necessarily a hopeless one, but on the contrary one which may be most easily managed once the mechanisms are delineated either by prevention or by direct manipulation of chemical constituents. On the whole, I feel much more hopeful concerning such disorders than I do about those heavily involved on the psychologic, social, and cultural levels of integration.

To proceed chronologically after conception, we enter upon a period of development which only recently has received much attention as one during which major forces may play significant roles in the production of a host of mental health problems. Congenital disorders such as cerebral palsy, epilepsy, and mental deficiency have been shown to be associated with complications of pregnancy and prematurity. In turn, these complications of parturition and prematurity have been associated with low socioeconomic status and are probably tied up in some fashion with poor nutrition, infection, and stress of other kinds. These same abnormalities, probably on the basis of lesser degrees of injury with resulting impairment of cerebral integration, have been shown to be associated with such disorders of learning and behavior as reading disorders, tics, and school behavior problems. Future exploration of these relationships might very well be done in such problems as strabismus, enuresis, accident proneness, psychopathy, childhood schizophrenia, and other conduct disturbances where neural organization might be impaired. This entire problem of the continuum of reproductive casualty is to some extent amenable to experimental studies in animals where the entire relationship of variables such as oxygen deprivation, vitamin, electrolyte and protein intake, radiation, work, psychologic stress might be studied in relation to the production of behavioral impairment. These variables must be studied alone and in combination in various degrees for varying lengths of time and at different periods during the development of the fetus; all these in turn must be considered in relationship to different psychologic functions.

As an example of a fairly new and possibly promising avenue of exploration, let me tell you about an additional variable in this area with which we are toying in our Research Division. There is some evidence to indicate that an animal can, at least experimentally, become isoimmunized to one or more of its own tissues or organs and that the antibodies so formed may either damage or destroy the homologous tissues or organs of the developing embryo in utero. What may exist experimentally may conceivably be the basis for some congenital anomalies of the brain and mental deficiency and, indeed, possibly congenital anomalies and damaged organs throughout the body. Theoretically this state of isoimmunization may arise in a number of ways. It may be that previous damage to the maternal brain by way of infection or other trauma may have released antigens to which isoimmunization took place or it may be that similar infection or trauma of a fetal brain released antigens which, crossing the placenta barrier, produced isoimmunization in the mother which then affected succeeding pregnancies. It may even be that, similar to the Rh isoimmunization, we may have differing and antagonistic neuronal constituents to which a mother may become sensitized and damage or destroy succeeding offspring.

These hypotheses of possible brain damage with consequent mental retardation and other organ disability are not too farfetched. This may very well be the basis of multiple sclerosis. We are able to produce in guinea pigs a disease which histopathologically and by symptoms, including remissions, is very sim-

ilar to multiple sclerosis by using these methods of isoimmunization to produce an allergic encephalitis. The immediate investigatory approach appears rather clear. The animal work would largely revolve about the production of isoimmunization to brain tissue at different stages prior to, and during, pregnancy and the study of the behavior of the resulting offspring. In human beings we would study the possible existence of antibrain antibodies in the mothers of defective children at the same time that we would investigate the possible existence of differing immunologic types of brain tissues. Should these concepts have any validity the obvious first step in prevention would then rest upon the routine study for the presence of antibrain immunization prior to each pregnancy.

I have gone into some detail in this particular future area of exploration because it is relatively new and dramatic and is an example of the multitudes of hypotheses that arise whenever we take even a small step into the investigation of a new field. It is also an indication of how cursorily I will be able to discuss other areas. After this digression let us return to the matter of longitudinal studies which—despite the inordinate difficulties and delay in profitable findings so apparent to investigators—must be entered upon intensively in the future. Most longitudinal studies in the past have served largely as pilot investigations for the development of methodologic technics and to light up some of the pitfalls with which longitudinal studies are bestrewn and which can ruin years of effort.

This brief mention of longitudinal studies is by way of introduction to the third chronologic field—that of childhood. I think it is only through these longitudinal studies that we will eventually and definitively pin down the relationship of early experience to later function in the sick and the well, neurotic and healthy, and possibly even in the psychotic disorders, although such relationships will not likely be found to any major degree in the latter. Only by using these longitudinal study technics can we, for instance, differentiate the effects of the brain damaging variables discussed previously and their hypothetical lowering of thresholds to stress and disorganizing effects when added to the spiral of psychosocial stresses and their interaction later in life. It has been adequately demonstrated by this time that, because of the complexity of the variables and the final criteria of function, the global longitudinal studies previously attempted were almost inevitably doomed to failure since, in time and because of the depth of study involved, we usually came down to one case per cell and frequently this one case was distributed among a number of cells. Future longitudinal studies will have to limit the number of their dependent and independent variables drastically in order to arrive at any definitive answers. This will necessitate a large number of such studies done simultaneously with the eventual hope of integrating variables by future longitudinal studies.

Since the type of studies I have been discussing are so arduous and expensive, retrospective epidemiologic studies of the relationship of behavioral disorders to hypothesized factors in early experience are greatly in demand to offer the most profitable areas for longitudinal investigation. However, even in these retrospective studies dependent and independent variables should be few in number. Here too, the global epidemiologic studies are in danger of adding confusion to chaos and frequently serve to hold up the needed investigations.

It is somewhat frightening to contemplate the numerous variables involved in child rearing and development which deserve investigation as variables determining mental health and disease.

Probably it would be possible to set up a hierarchy of importance, but it is at such times that I question the importance of some studies of etiology. While they should and probably will be done, we cannot, nor do we, await the results of such studies. Preventive measures based on some of these hypothesized etiologic relationships have been advocated for centuries. Perhaps it is in the experimental evaluation of these measures that we can not only save time but also, if these studies are done well, define causation. Here, too, it is imperative that the number of dependent and independent variables be carefully defined and limited, and that concrete measurable and objective criteria for ultimate functioning be used. There has been a good deal of bewailing the fact that such criteria are difficult to find. This is in large measure unwarranted and largely dependent upon the efforts to find global criteria instead of partial, perhaps fragmentary behavior items and patterns. These, while obviously not as satisfactory, may not only be evidence of total functioning, but may be the only immediate criteria available.

This might also be the appropriate time to warn of undue emphasis on research, and awaiting research findings before undertaking action programs. "Doing research," or surveys, is frequently a method of avoiding responsibilities for activity. The hoary tradition in public health of doing a survey when the pressure arises is all too prevalent in the field of mental health, to the point where we now look somewhat askance when one is suggested. Activity programs have the added incentive of the possibility of testing hypotheses and stimulating research.

While we are on this topic of methodology for studying the effects of psychosocial variables, the difficulties inherent in such studies, and the compromises that must be made to carry them out, mention of the efficacy of psychologic measures in the therapy of psychologic disorders may very well be appropos. It is paradoxical that in an area of mental health which probably has the greatest number of practitioners and consumes the greatest amount of total time of the professional workers in the field so little controlled experimentation and evaluation has been done. There is no point to a discussion of probable cause for this inverse relationship, but there is no doubt that a tremendous backlog of investigation exists. The difficulties involved in these studies have been somewhat exaggerated and to use the psychodynamicist's ad hominem statements may very well be rationalizations. In any event, it is obvious that no improvements in the beautifully embroidered and everlastingly cauliflowering improvisations on the theme involved in the multiplying psychotherapeutic schools is possible until one or more of these schemata are evaluated. It is not exaggerating to state that if this is not done soon, psychotherapy as a therapeutic tool may very well fall into disrepute.

It is in the next age period, between youth and old age, that I believe our most significant immediate advances will be made. There is great hope for cracking wide open those most costly problems in mental health, the functional psychoses and particularly schizophrenia. The evidence accumulated from the clinical observations, physiologic, endocrine, electrophysiologic and chemical studies, by the shock therapies and the tranquilizing drugs, indicate, at least to me, that schizophrenia is primarily a disease of organic etiology no matter what the precipitating factors may be, whether psychologic, social, or physiologic stress. The answer to the problem, I predict, will lie in another of the inborn errors of metabolism within the central nervous system, either the entire brain or more likely in one or

more loci. Also, the major portions of this puzzle will be laid bare within the next decade and that methods of therapy, or even better prevention, will follow swiftly. This opens exciting prospects for tremendous savings in suffering and funds when we consider that we are discussing a disease that fills a quarter of the hospital beds of the country and affects possibly five times as many individuals in the community. It is difficult to tell where the crack will first appear, whether in the microchemical investigations upon tissue culture of schizophrenic brain cells or in the more indirect methods following upon the histochemical studies of enzyme systems. All these avenues must be pursued vigorously while at the same time we investigate the action of the psychopharmacologic and psychomimetic agents, not neglecting the nonspecific therapies and their ordered improvement and testing.

If there is any validity to my prediction of progress in the functional psychoses, we are obligated to enter upon some exploration of methods of rehabilitation of sizable groups of individuals. We already have some models, although not as well developed as might be desired, in the physical handicapping conditions such as tuberculosis. However, we have the additional problem in the functional psychoses not only of behavioral distortions in the patient and frequently years of broken and disorganized contact with the world, society, community, family and individuals, but also prejudices and ignorance on the other side of the barrier. All these variables must be studied in relation to rehabilitation. In the past we have barely touched upon the straightforward sociologic investigations of the cost to the community, the family, and the individual of mental illness in terms of actual expenditure and loss of social status and morale. We have hardly entered upon studies of the consequences to employment, earnings, friendship, or family relations of the patient returned to the community after hospitalization. These are studies which should be done soon, no matter what else occurs in the field of the functional psychoses.

In this hurried and somewhat presumptuous survey of a few highlights of what is needed and what probably will be done in the not too distant future in the field of mental health we come finally to the mental disorders of later life. We ought to distinguish here, among other disorders, those consequent to vascular difficulties, and those which for want of more precise pathologic delineation we call senility. The first group, those following upon arteriosclerosis and related disorders, will undoubtedly, like so many other psychiatric disorders including pellagra, paresis, the encephalitides and the meningitides, have their etiology, and hopefully their prevention and treatment, studied by those who are concerned with the vascular diseases as distinct phenomena. Like most of the chronic disorders, their causation is most likely multifactorial with probably nutritional and possibly genetic factors involved. Why some individuals have symptoms with minimal vascular changes and others have none with maximal changes may be purely a matter of anatomic localization. On the other hand, there may be problems of lowered thresholds to these vascular changes in certain brains and it is obviously of the ultmost importance that the factors involved, or which may be involved, should be pursued. But even before the answers to these problems are found, it appears likely that with improvement in certain nutritional and psychosocial factors in addition to the beginning use of some new drugs, deterioration and illness may be put off or even prevented, and at the very least, decreased to the point where happy non-

institutional life is possible. Because of the growing urgency of the problem, these means must be investigated thoroughly experimentally.

Senility and the disorders following upon senile changes in the brain may be looked upon by some as another example of the circular thinking present in psychiatric concepts. Because they occur during old age, they may be thought of as consequent to having lived long enough to develop such disorders. Since nervous tissue is the only tissue which, in the past, has been thought not to reproduce itself or to to be the only mammalian tissue which is not potentially immortal, senile changes in death have been considered as the consequences, or rather sequelae, of having a mammalian brain. While there may be some ultimate truth to this, there are other practical considerations. Individuals vary widely in their intellectual and behavioral characteristics during extreme old age. Whatever they may be, the factors involved in producing these differences, whether similar to those in the vascular disorders or not, urgently need investigation in view of the mounting rate of hospitalization for such disorders.

I have done little more than enumerate some of the interests of our own Research Division, omitting almost entirely any discussion of future basic studies in the biochemical, physiologic, psychologic, and sociocultural areas of animal and human functioning. It was inevitable that I would fall into some well worn rut but I am somewhat dismayed to find that I was not fully aware of what I was doing. It only serves to underscore my foolhardiness in undertaking this gigantic topic. It should be clear that it is not possible to do much more than point to some of the more important areas for future exploration, to hint at the hypotheses to be tested and at a few of the variables that might be involved. It might be best to envision some type of three-dimensional, thousand-fold tabular model which could be used to represent the associations and relationships that require investigation. Indeed, this might very well be one of the first steps to be taken into delineating most profitable future explorations. Such a model could furnish us with a possibility of setting up priorities and studies and which might even stimulate the development of new technics to test the hypotheses involved. I can even see an enormous underground room at NIMH where mental health research could be planned far in advance. I am not being entirely facetious when I suggest this, when I consider some of the poorly planned studies which could never return any proper reply to the questions asked and when I think of the wasted time, effort, money and personnel. However, as I tried to point out at the beginning, waste is inherent in vigorous growth but planning and organization can now begin to minimize this without stifling anything but the weeds.

I have not departed too far from fairly well trodden paths, nor have I ventured very far into the future. In the field of human behavior, we do not travel too long before we encounter values and value judgments. They are involved in ultimate criteria for functioning and they are inherent in the goals we seek and are discussing. Though I have used the term mental health a number of times I have really been discussing disease entities and clinical syndromes. This was quite intentional. We have enough disease and suffering to contend with, to eliminate, and to study before we can enter upon investigation of such an ill-defined entity as mental health. The absence of mental health is too much with us. Nevertheless, it is not too early to enter upon a consideration of what mental health is or what it should be. This is heavily involved with the values and

value judgments I have discussed previously. Until we explore these scientifically our discussion must remain on the ethical and philosophic level.

Now what about the distant future? What will happen fifty or more years from now? This I can discuss with you with the utmost degree of certainty. If I am wrong, I will be happy to admit it at that time. In the first place, we have hints that the amount of work that remains to be done in the biologic, psychosocial and cultural correlates of behavior is enormous. With the crude organization of research we possess at present and the relatively few individuals involved, what I have outlined so far would take thousands of years to accomplish. I sincerely believe that not only will we have exponential increases of personnel in the near future, but that as technology improves and man increases his leisure time, more and more people will come in to what is, ultimately, the most important and the most interesting research area we possess.

Not only will part-time research workers be available, but more and more experimental subjects will gladly make themselves available for studies. Not only will it become an honorable avocation, but it may very well become a paid job as well. We are greatly in need, even immediately, of all kinds of subjects for experimental studies, which usually will not involve any harm or pain to the individual. As psychopharmacology, neurophysiology and neurochemistry become ever more closely tied to psychodynamics and psychopathology only the normal human subject can supply the ultimate crucial tests. To think in Rube Goldbergian terms, it may not be too long before emotional and indeed all types of behavior in animals will be transmitted by electronic devices imbedded in the proper tissues, and which will send telemetered signals to the proper recording devices. Such terms as emotions, motivation, maturity, anxiety, and possibly even thinking, will, a hundred years from now, be obsolete and found as only a part of the layman's terminology. We will then have a meaningful classification system with the proper physiologic, chemical, and electrical correlates. However, this will not keep us from developing new terminology and conceptualizations on the psychologic level about which we will quarrel and despair of ever defining.

Since we are wish-hunting in the future we might consider the ultimate resolution of those great human indignities, disease and death. It lies within the realm of possibility and with even some faint glimmers of probability that in the brave new world to come, the Huxleyan notion that we might, by using human ova fertilized in vitro, grow organs, including the central nervous system, which the surgeons of the future could easily install, permitting the peripheral branches to grow down to their proper endings with the body in a state of hibernation. To continue in this realm of the light fantastic, by that time we should be able to record the contents of an entire brain and its life experiences on the same tape we feed into digital computers and then feed this back into the newly born central nervous system, of course excising all the errors, prejudices, and other human failings.

It would be possible to continue indefinitely to outline hypotheses that will be tested, and to make predictions concerning the future and beyond. There is but one more I care to make before I finish and this is to say that despite, and possibly even because of, all the wonderful things to come, we will still have behavioral difficulties in the twenty-first century.

Epidemiology of Reading Disabilities; Some Methodologic Considerations and Early Findings

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Some early findings in the search for answers to questions of the incidence of reading difficulties and ecologic factors responsible for reading disability are interestingly presented here.

This study is a product of the dual capacity in which we work.[1] As a group offering mental health services in a county, we became aware that one major concern, in the schools, in the homes, and in court, was the apparent high frequency and ubiquity of serious reading problems among school children. As a resident mental health research team in the county, we recognized that this community problem was remarkably suitable for epidemiologic inquiry. Reading disability is a definable phenomenon. There may be disagreement about the validity of a particular definition of retarded reading, but there need be no serious question about its clarity. Furthermore, there are reliable and economical tests for measuring reading level now in wide use.[2] Such tests are administered in our county to all school children — our population-at-risk — at least five times during their 12-year school career. In addition, of course, each child is under professional scrutiny, that of his teacher—approximately 25 hours each week. For all of these reasons, accurate and complete case finding and case counting, among the more difficult problems in epidemiologic studies of mental disorders,[3, 4] become approachable goals. It is possible to know with reasonable accuracy how many children have serious disabilities, to know where these children live, and, if only crudely at first, who they are and how they live. It is also possible to know these things about average readers and very good readers.

In studying such phenomena we are studying a syndrome defined in educational terms rather than one traditionally associated with the assessment of health, and the syndrome is clearly a final common pathway which may have many origins.[5–7] Nevertheless, it is almost certainly of great mental health relevance—and for several reasons. It has been observed that reading disability is a frequent finding among adolescents who have been identified because of chronic antisocial behavior.[8, 9] Although this observation has been made systematically only among individuals under the jurisdiction of some law enforcement agency, certainly not a representative group, it is consistent with the impressions of school principals in our county. There are, at best, only speculations about other mental health problems significantly associated with reading disability. The poor readers in the junior high school age range have been characterized by several principals as isolated and lonely children who rarely participate in extracurricular activities and drop out of school as soon as permitted by law. It is our intent to examine these and kindred associations as part of this study.

The origins of reading disability, undoubtedly complex and multiple, are of major concern. As in any epidemiologic investigation, we proceed with the expectation that sharp and coherent questions about etiology, and possibly parts of the answers, will result. Our major professional orientation is toward patterns of interaction within families as they shape and reflect attitudes toward learning, and we are interested in these patterns as products of cultural, social, and economic forces in communities. It is certainly possible that our attentions will be directed to other etiologic factors. In all instances, however, we will want not only to identify the associated factors but also to understand how they operate.

We are also interested in the consequences of reading disability for the mental health of individuals. Reading is a basic and highly valued communication skill and a disability in this area, whatever its origins, limits an individual's capacities in many areas. It almost certainly is damaging to his self-esteem and reduces his opportunities for social interaction.[10] As with so many chronic disorders, its consequences reduce the probability of its correction and may, in fact, lead to its entrenchment and even enhancement. We are interested in exploring and documenting this apparent destructive potential.

Our long-range conjecture, and it would certainly be premature to call it a hypothesis, is that even such a seemingly circumscribed disorder as reading disability, together with its sources, constitutes an important reservoir of psychopathology from which a variety of disorders may emerge. Should this be demonstrated, the presence of reading disability in an individual, or an unexpectedly high incidence of reading disability in a family or neighborhood or community, could serve as a flag, calling attention to the need for more intensive examination. We would have, in short, something like a "coliform count" for a public health approach to mental health problems, fairly crude, but simple and useful as a screening device.

In this paper we report some of our early findings, presenting data addressed to these questions:

1. What was the observed incidence of reading retardation among children seen at our facility?
2. How many children in the county are retarded in reading?
3. Are specific portions of the population more likely to be affected by this condition? What is the geographic or demographic distribution of reading disability? What are some of the characteristics of high- and low-frequency groups or areas?
4. Is reading disability a stable condition? Is there a natural history to the development of reading disability? What is the child with reading disability like?

What Was the Observed Incidence of Reading Retardation Among Children Seen at Our Facility?

We have indicated our impression that reading disabilities have important mental health significance and that they are related to other mental health problems Our first step in documenting this impression was to examine our own clinical records. Our Center has maintained a community mental health clinical unit since 1948. We have examined 536 children (seven through 17 years) during this period. Of these, approximately 13 per cent were diagnosed as mentally deficient and approximately 7 per cent of the total group

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Dr. Miller (now transferred to England for advanced study and research in mental health) was director; Dr. Margolin is the chief psychologist; and Dr. Yolles is the present director, Mental Health Study Center, Community Services Branch, National Institute of Mental Health, Langley Park, Md.

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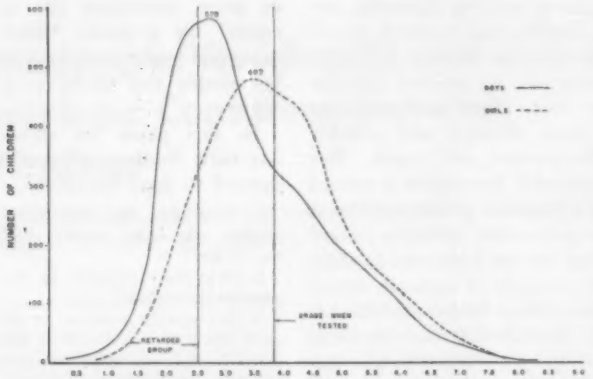

Figure 1—Distribution of All Children in Third Grade by Individual Reading Scores—1955–1956

were referred primarily because of reading disability. Of the remaining 427 children, 30 per cent of the boys and 22 per cent of the girls were noted to be poor readers.

Most of these children were patients at a time when the staff was not particularly alerted to reading problems and assessment and recording of reading level was not routine. These figures, therefore, should be considered as minimal, but they are considerably higher than the present general distribution of reading disability in the county school population.

This is a county of 496 square miles and 306,000 people,[11] located just outside Washington, D. C. The county includes suburban areas in a belt five to 10 miles wide adjacent to the metropolis, fanning out into a much larger rural area. The urban and suburban areas may be described as "bedroom communities" with a large proportion of their wage-earners employed in the city and with many of their recreational and cultural activities centered there as well. The rural area extends 40 miles from an essentially middle Atlantic region on the north to a southern region similar to the Tidewater of Virginia.

How Large Is the Problem of Reading Retardation in Our County?

Figure 1 shows the distribution of reading scores in the third and fifth grades in school year 1955–1956. It is sufficient to note here that the curves resemble that of a normal distribution and that there is a wide range of reading scores in each grade. A closer look at the lower ends of the curves gives us the data shown in Table 1. A similar level of retardation was found in the 1954–1955 study of reading achievement.

The boy and girl populations were analyzed separately to evaluate the impression among reading specialists that girls are generally more advanced in reading. This is in agreement with our examination of clinic records which

Table 1—Number and Percentage of Children with Retarded Reading in the Third and Fifth Grades—1955–1956

Grade	Total No.	Amount of Retardation (Years)	No. Retarded	Per cent Retarded
3rd	6,150	1.3	1,198	19.4
5th	3,953	2.3	635	16.1

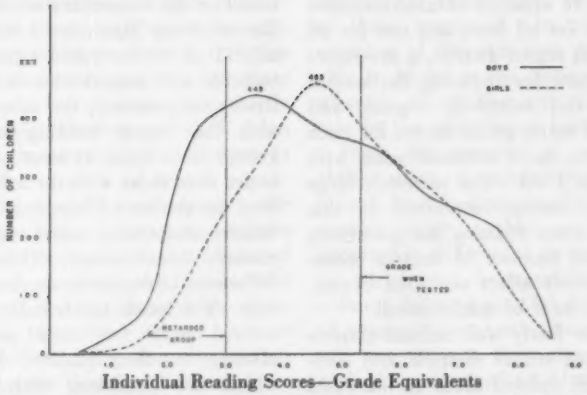

Figure 2—Distribution of All Children in Fifth Grade by Individual Reading Scores—1955–1956

noted a large preponderance of boys having difficulty with reading. It is also illustrated in Figures 1 and 2. Our findings are summarized in Table 2. These data offer convincing evidence, at well beyond the 0.001 level of confidence, that a larger proportion of boys are retarded in reading.

How much of this reading difficulty represents the lower end of the intellectual scale? Few children with frank mental deficiency reach the fifth and sixth grades. However, mental deficiency could be a factor in the third-grade results. Consequently, a sample of third-grade scores in the year 1954–1955 was analyzed by intelligence level derived from a group test of intelligence.[12] It should be noted that such an instrument will tend to minimize the I.Q. of a poor reader. Of 2,175 third-grade children scoring average (90) or above in I.Q., 11.2 per cent were reading 1.3 years or more below their grade, i.e., below the second-grade level. It would therefore appear that the larger percentage of children with reading difficulties were of at least normal intelligence.

Table 2—Number and Percentage of Boys and Girls with Retarded Reading in the Third and Fifth Grades—1955–1956

Grade	Sex	Total No.	Amount of Retardation (Years)	No. Retarded	Per cent Retarded
3rd	Boys	3,077	1.3	826	26.8
	Girls	2,982	1.3	372	12.4
5th	Boys	2,103	2.3	451	21.4
	Girls	1,850	2.3	184	9.9

What Is the Distribution of Reading Level in the County?

Is it distributed randomly throughout the county, or does it follow a geographic pattern? Test results were grouped by school districts to determine geographic distribution. For each school district the mean reading score was obtained, as well as the percentage of children retarded in reading, the percentage reading in-grade and above, and the percentage advanced in reading. Necessarily our definition of retarded and advanced status differed for the several grades. For example, in the sixth grade, we defined advanced status as those reading at the eighth-grade level

or above. In order to obtain composite scores, one for all boys and one for all girls in each school district, a procedure was developed for reducing the several measures, i.e., retarded, in-grade and above, and mean grade score, for each grade tested, to a common scale with values from 1–20. The relatively large number of ratings contained in this composite score reduces the possibility that a small number of deviant scores will excessively affect our final evaluation of the level of achievement.

There are fairly well defined clusters of high-rated school districts and comparably well defined areas of low-rated schools. These clusters are not randomly nor haphazardly located but approximate meaningful geographic entities. The delineation of these patterns and the identification of high and low incidence areas are, of course, no more than first steps. They are the source of a network of questions, the sum of which is—What is the ecology of these areas? The school itself is, of course, an important part of each area. In interpreting any data, therefore, it is important to underline the fact that all of the school districts in this county are administered by one Board of Education and that the philosophy, standards, and supervision pertinent to the teaching of reading are essentially uniform throughout the school system, and that reading materials are comparable.

The communities around the schools were evaluated in a study of residential neighborhoods made in 1955 by the Maryland-National Capital Park and Planning Commission.[13] The area examined included much of our county and virtually all of its densely populated sections. The major part of this study is an analysis of the quality of housing, population density, the rate of social assistance and juvenile court cases, and community facilities for each "neighborhood." These neighborhoods coincide very closely with and were often based on the elementary school districts. Eleven of our high-rated school districts and 11 of our low-rated school districts coincide with neighborhoods so studied. Briefly summarized, the school districts with the higher reading level, as a group, were rated at least one quartile better than those with the lower reading level in quality of housing, population density, and rate of social assistance and juvenile court cases. There was no difference observed in community facilities. The latter, incidentally, were considered only for their presence or absence, not their quality. These data, which are consistent with our eight years of observation in the county, certainly call attention to important socioeconomic dimensions in the problem of reading disability. The findings offer leads, but are far from conclusive.

Many questions about reading retardation can be answered only by a longitudinal study of a sample of the school population. To this end, we have established several follow-up groups. From the sixth grade, 1954–1955, we have selected all of the children in 12 schools whose reading was two or more years retarded; all who were reading in-grade plus or minus two and one-half months; and all who were reading at the eighth-grade level or higher. The 12 schools were selected to include high scoring areas and low and the various regions of the county. The three groups should be regarded, at least for the present, more conservatively as comparison groups than as controls.

In our first year we were able to follow 248 of the 306 children in the original group. During the first year this follow-up has been limited to an examination of reading level. Two reading quotients were calculated for each child, one each for the sixth and seventh grades. The reading quotient is obtained by dividing the age equivalent of the reading score by the chronologic age at the time of the test. We found

remarkable consistency within individuals at the three reading levels, substantial support to the notion that this is an enduring phenomenon. Any more positive statement must necessarily await a longer follow-up period. We plan to expand the scope of the follow-up to include other aspects of school adjustment, social as well as academic. We have already begun a systematic analysis of the family background of the selected children. A sample of the families will be contacted directly through questionnaire and interview. All of this is greatly facilitated by the cooperation given us by the Board of Education.

The preceding discussion has brought us back to the role that originally called attention to the problem. In addition to looking at large aggregates of individuals we have employed the clinical facilities of the Center to gain a more intimate view of the dynamics of a few cases of reading disability. Two therapy groups were organized, one of boys and the other of their parents. During the psychologic evaluation and subsequent therapy attention was devoted to recording the boys' characteristic modes of interaction, their interests, attitudes, and the impact of family, school, and other social forces on them, as well as the effect of their reading disability on their daily lives. In short, an effort was made to understand the meaning of the reading disability in the boys' personal economies.

Perhaps the best focus for understanding the design of the research is our concept of the reading disability itself. It is not regarded as a disease entity with a limited and consistent set of causes or agents. Rather, as was said, it is conceived as a psychologic state serving as a final common path proceeding from a variety of antecedent causes and circumstances. This terminal state may be the product of family dynamics, of peer-group pressures, of physiologic inadequacy, etc., or many of these combined. In addition, the selection of this symptom pattern probably is related to the cultural value and meaning of reading and to its crucial role in the educational processes.

From this concept of reading disability stems the multidimensional approach described previously. The demographic study enables us to localize geographic differences in reading ability which may be translated into subcultural differences. Our understanding of geographic and subcultural correlates will constitute a long step toward an ecologic understanding of the problem.

The follow-up study, providing more information about the life, history, and background of the child and of his neighborhood, should bring us even closer to firm hypotheses about social forces affecting reading ability.

The clinical work with groups is expected to guide us to hypotheses concerning the final common path described and to assist us in understanding the psychologic implications and meaning of the social forces mentioned.

Such hypotheses would remain to be tested in the field through adequate survey technics designed to evaluate the social matrix, that is, the social and psychologic setting in which varying levels of reading ability develop.

Summary

Reading retardation in school children, a complex problem with important implications for mental health, presents unusual opportunities for epidemiologic investigation.

There was a suprisingly high incidence of reading disability observed in an unselected group of children seen in the county mental health clinic.

A survey of the elementary school population in one county over a two-year period confirmed that reading retardation is a substantial problem, and

that boys are more frequently affected than girls.

The distribution of reading retardation is not random and areas of high and low incidence were identified. Preliminary evidence for certain socio-economic correlates was presented.

In a one-year follow-up the relative reading capacity (reading quotient) of individual sixth-grade children was found to be remarkably stable.

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Research Relating to Children

The Children's Bureau has recently issued its third listing of current research projects relating to children. The 249 projects listed were reported between October 1, 1956, and February 28, 1957. The studies are classified into six main groups relating to physical and motor development, intelligence, behavior and personality, education, health services, and social services.

Research workers who want to register studies or ask for information should write to Clearing House for Research in Child Life, Children's Bureau, Washington 25, D. C. The volume, "Research Relating to Children," from the Gov. Ptg. Office, Washington 25, D. C., 25 cents.

Development of the National Water Supply and Sanitation Program in India

C. H. ATKINS

In all India there were only 50 sanitary engineers. Now the country is embarked on the training of a thousand, together with five thousand sanitarians and other sanitation personnel. Here is a picture of crushing burdens courageously shouldered.

We in this country are indeed fortunate in having a relatively high standard of living and per capita income. The average American takes his wife and children in the family automobile cross country and stops at his own convenience to obtain water, food, and relaxation. He does not take precautions to assure that the drinking water is boiled or otherwise treated, that members of the family eat only those fruits which they peel, and that no uncooked vegetables are included in their meals. This situation does not exist in a large part of the world.

The magnitude of the environmental health problem throughout the world is indicated by the statement that "more than three-fourths of the world's population drink unsafe water, dispose of their human wastes recklessly, prepare their milk and food dangerously, and are plagued by insects and rodents." [1] Such insanitary conditions give rise to water- and filth-borne diseases, such as cholera, typhoid fever, diarrhea and dysentery, and worm infestations. These diseases take terrific tolls in the world's greatest resource—manpower. They result in much suffering, sickness, and death. They impose economic burdens on the family, on the community, on the state, and on the nation. They take the worker out of the field and the factory and overburden medical care facilities and services.

It has been said many times that Communism sprouts its seeds in dissatisfied and frustrated groups and that these sprouts are nourished by substandard living conditions. This might be one of several reasons why the U. S. Technical Assistance Programs to underdeveloped countries include health and sanitation. These programs are designed to alleviate suffering, improve the economic status of individuals and countries, and to otherwise help them live and progress as free people and free nations. It was these objectives that afforded the author an opportunity to go to India in 1952 and to serve as adviser in public health engineering to government until mid-1955.

Some of the Socioeconomic Factors

In the development of health and other programs that require participation by the public, it is highly important that cultural, economic, physical, and other conditions in the area be given full consideration. In some socioeconomic aspects India might be termed a land of extremes. The tall sisters of Mt. Everest in the Himalayas are in con-

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trast with the vast plains and many miles of coastal area. The great Rajasthan Desert with 15 to 20 inches of rainfall per year is much different from Cherripungi with an average of some 430 inches and a maximum of 850 inches per year. India's climate might be considered semiarid and tropical with certain exceptions. In the summer before the monsoons the temperatures may reach 115° to 120° in central India, somewhat less but more humid in the south, and a very pleasant 85° maximum in the mountainous areas. In central India the majority of the rainfall comes during the monsoon which begins in July and ends in September. Some areas of the country have heavy rainfall during the winter also.

In land area India is less than half the size of the United States and has a population of 355 million. The mean density of the population of India in 1941 was 246.0 per square mile, which compares with 44.2 per square mile in the United States in 1940.[2] About 85 per cent of India's population is rural and lives in some 550 thousand villages. The urban population of about 75 million resides in 73 cities with populations of over 100 thousand, 485 major towns with population ranges from 20 to 100 thousand, and about 1,450 minor towns with population ranges from five thousand to 20 thousand.

There are 12 major languages in the country and Hindi is the national language. There are also many dialects and subdialects. However, English is generally spoken by the educated people throughout the country. All their technical publications are in English and the national government business, as well as that of most of the states, is transacted in the English language. The literacy rate is about 10 per cent, but there are some states in which the rate is as high as 90 per cent.

The predominant religion is Hindu, but there are Moslems, Buddhists, and Christians. The basic Hindu philosophy, much of which was developed before the time of Christ, includes covenants which are believed to have been good public health practices in their time. Some of these are rigid personal hygiene, including frequent baths; access to kitchen and food preparation areas restricted to the Hindu mother; and use of palm and bay leaves as single service utensils.

India's culture and many of her problems had their beginning many hundreds of years before the dawn of Western civilization. Yet, India gained her independence less than 10 years ago. Thus, her national, state, and local governmental structure is one of the youngest of any major country. Her constitution, in many respects, is similar to that of the United States. She has a president who selects a strong leader of Parliament to form a government. There are two houses of Parliament and the heads of the various government ministries are selected from the members of Parliament. For example, the Honorable Raj Kumari Amrit Kaur, the minister of health of India, is a member of Parliament. Along with the Ministry of Health there are the Ministries of Finance, Public Works, Home Affairs, External Affairs, and others which roughly conform in functions to the several departments of the United States government.

An important organization of the Executive Branch is the Planning Commission. Prime Minister Nehru served as chairman. This Commission does the over-all planning for the country's development. The First Five-Year Plan, which covered the period from April, 1951, to April, 1956, and the Second Five-Year Plan were developed by the Planning Commission in consultation and in cooperation with the several ministries of the central and state governments. That Commission also had the responsibility for the community de-

velopment projects through a subsidiary organization, the Community Projects Administration. The community development projects were included in the First Five-Year Plan to improve agriculture, home industries, education, housing, health, and roads in selected areas throughout India. Some 300 of these projects were rendering financial and technical assistance to about 100 thousand villages in 1954.

The economy of India is largely agricultural, hence the relatively low per capita income of about $50 per year reported in 1949. Considerable progress is being made toward the development of industry: three steel mills were either under construction or in the planning stage; several major hydroelectric projects were under construction; and the automobile and machine industries were expanded during the period 1951–1955.

Magnitude of the Environmental Health Problems

Soon after independence the leaders of new India recognized the importance of improving the health of the nation, and one of the measures was the appointment by the Ministry of Health of an Environmental Hygiene Committee in 1949. The major functions of this committee were to study the water supply and sanitation problems in India and to recommend remedial action. That committee reported that only about 16 per cent of the towns of India had "protected" water supplies serving a total of about 6 per cent of the population. In the villages the percentage of "protected" water supplies was much lower. In fact, the committee reported that one-fourth of the village housewife's time was spent in seeking and carrying water for the family use. The committee reported that 23 out of 48 cities having populations of 100 thousand and over had sewers, and that 12 smaller towns had some sort of sewage collection system. In the villages, less than 5 per cent of the homes had any kind of latrines. This committee made a rather extensive study of the environmental health problems and what should be done about them. Their report was invaluable as a guide to the government and others concerned in the development of the National Water Supply and Sanitation Program.[3]

The low status of water supplies and sanitation, both in the urban and rural areas of India, has the inevitable result—high incidence of enteric diseases. During a 10-year period ending in 1950, the average annual number of deaths reported for certain of the enteric diseases was: cholera, 202,857; dysentery and diarrhea, 227,850; and fevers, 2,313,146. This figure of deaths from fevers does not include the estimate of one million who died from malaria, but does include an unknown number of deaths from uncertain causes. While figures were not available on the number of cases of hookworm and other such diseases, it was known that these were very prevalent. In fact, a prominent physician in the field of world health once said that: "in certain tropical and subtropical countries the intestinal parasites metabolize more food than their human hosts."[4] It was estimated that some two million deaths and about 50 million cases of illness resulted each year from water- and filth-borne diseases. This, of course, represents a tremendous toll on the human resources of the nation and is recognized as a terrific economic burden.

The Planning Commission in its First Five-Year Plan included the following statement: "The provision of an environment conducive to healthful living is an essential requirement for the maintenance of public health. In countries where water supplies and waste disposal have been attended to, cholera, typhoid fever, and dysentery have al-

most disappeared and rare cases occur due to personal contact or food handling by healthy carriers. These measures also have their effect on the infant mortality rate and the intestinal parasitic infection rate. In India these problems largely remain to be solved." [5] The enormity of the environmental health problem certainly warranted the action of the Planning Commission in giving priority to water supply and sanitation in the health program of its First Five-Year Plan.

Resources for Water Supply and Sanitation

In planning the water supply and sanitation program it was necessary to determine the resources available and those that must be developed or otherwise acquired. Apart from the favorable attitude of central and state government officials and their support, the most important resource sought was qualified engineers and other personnel. There were about 50 engineers in the country who had postgraduate training in sanitary engineering or public health. Some of these engineers had such training here in the United States, although the majority of them were trained at the All-India Institute of Hygiene and Public Health in Calcutta. In addition to this training facility, some training was carried on at the University of Madras. There were several engineering schools in the country but none of them provided undergraduate or graduate work in the field of public health engineering.

There was no public health or sanitary engineering organization in the Central Ministry of Health or other federal agencies. The Public Works Department did some design and construction of water and sewerage facilities on federal properties and in some of the minor states where no other engineering service was available. Questions of sanitary significance in the design and operation of water and sewerage facilities were referred to medical officers or others in the Ministry of Health. Nine of the 29 states had some nucleus of a public health engineering organization. A majority of these were under the State Public Works Department rather than the Health Department. They were concerned primarily with the design and construction of water and sewerage facilities in urban areas.

There was little or no domestic production of equipment for water and sewage treatment—well drilling rigs, trucks, jeeps, etc. Cast iron pipe was being produced in quantities barely sufficient to meet the normal demand, but it was found that the level of production could be increased substantially on short notice. Earthenware and concrete pipe could be produced in quantities sufficient to support a sizable sewer construction program. Arrangements could be made to import equipment and materials needed in addition to that which could be produced in India.

The availability of funds, of course, played the usual and important role. The budget of the previously mentioned community development projects included small sums for water and sewerage facilities in the community development areas. Apart from this there was little or no financial participation by the federal government included for these purposes in the First Five-Year Plan. Some of the states did include limited amounts of funds, but these were not commensurate with their immediate needs. The U. S. Technical Cooperation Administration indicated a willingness to help the Indian government begin to meet its problems in the field of water supply and sanitation. The World Health Organization and the United Nations International Children's Emergency Fund also indicated their interest in participation.

Program

The Indian government made funds available and requested assistance in the establishment of a national water supply and sanitation program directed toward meeting her great environmental health problems. A public health engineering section was established in the Ministry of Health of the central government and in the majority of the states not having such services. The Department of Sanitary Engineering of the All-India Institute of Hygiene and Public Health was strengthened by additions to the staff and the establishment of a special training course for engineers and allied personnel. The Community Projects Administration and the Ford Foundation established training centers for public health personnel. Health education was stressed in these special training courses. The World Health Organization, the Rockefeller Foundation, and the U. S. Technical Cooperation Administration granted fellowships to engineers for graduate study in sanitary engineering outside of India.

Research in water supply and sanitation was broadened in scope and accelerated by the All-India Institute of Hygiene and Public Health. In addition, work, especially in water treatment, was carried on at the King Institute in Madras under state and city auspices. The World Health Organization approved two projects which were designed to determine the impact of an effective water supply and sanitation program on public health in rural areas of India under variable conditions. Other objectives of these projects were to improve the design of the facilities and to demonstrate effective methods of conducting rural sanitation projects. The Central Ministry of Health inaugurated some limited studies and demonstrations relating to the design of village water supplies and excreta disposal facilities. Included in this was an investigation of the possible use of windmills for pumping water in villages.

The program of financial assistance for the construction of urban and rural water supply and sanitation facilities was announced to the states in August and September, 1954. The central government agreed to loan the equivalent of $13 million to the states for passing on to the municipalities during the ensuing one and one-half years. Within about six months this fund had been increased to $42 million which was allocated to some 250 municipal water supply and sewerage projects. The federal assistance could cover the total cost of the projects, but in many instances the municipalities and the states made funds available and supplemented their resources with loans from the federal government. The Technical Cooperation Administration of the United States made available about $5 billion for the urban and rural water supply and sanitation program during this period.

For rural sanitation the central government originally allocated funds amounting to about $6.5 million to the states for grants not to exceed 50 per cent of the total cost of the projects. This fund was oversubscribed and it was increased to over $13 million, a large portion of which had been allocated to about 100 projects covering some 10 thousand villages during the first year.

Program operations were retarded and limited because of the lack of public health engineering services. There were only a few private consulting engineering firms in India, and these, in general, were not equipped to handle large amounts of design and construction. This work usually was performed by the State Public Health Engineering Organization except in the larger cities, such as Calcutta, Bombay, and Madras. The average city, therefore, relied on the state organization for the design and construction of its water and sewerage

facilities. This, of course, placed a tremendous burden on the understaffed state public health engineering organizations. The design standards primarily were those of the British practice with some adaptations to Indian conditions. These were not adequate and some changes were made pending the development of standards by the state and central governments. Some standards were developed for the design of rural water supply and sanitary facilities.

Prerequisite to the approval of projects by the central government and the allocation of funds was the submission of an application together with a preliminary engineering report for each of the projects. These were reviewed by the Federal Public Health Engineering Section. When found acceptable, the projects were recommended for approval and the allocation of funds. In some instances the projects were conditionally approved. The most frequent problems were inadequate design and the lack of public health engineering services. The first quarterly payment on the projects usually was made available immediately, but it was the policy of the Central Ministry of Health to require inspection of the construction by its public health engineers. Future payments were contingent upon compliance with recommendations as to any necessary changes in the design and upon progress of construction.

The procurement of equipment and materials that had to be imported required considerable time and thus retarded implementation of the program. Through funds made available by the Technical Cooperation Administration, a large number of well drilling rigs, trucks, jeeps, and some engineering equipment, pumps, and cast iron pipe were purchased in the United States and elsewhere for the program; but in the interest of developing India's industrial economy, every effort was made to utilize such equipment and materials as were produced indigenously and to increase such production. India's production of cast iron water pipe was increased to about 50 thousand tons per year. This represented little more than half the amount required for the approved water supply projects. Consequently, the completion of these projects on schedule was dependent upon the importation of about 45 thousand tons of cast iron pipe. During the first year of the program 11,500 tons were purchased outside of India.

The states established district engineer offices and resident engineers in municipalities to carry on the urban work much like is done in this country with the notable exception—the lack of participation by private consulting engineering firms and municipal engineering organizations. On the rural phase each project was designed to cover approximately 100 contiguous villages within a period of two years. The project staff recommended consisted of one assistant public health engineer, one overseer or foreman, one sanitarian, four sanitarian aides, one well driller, one assistant well driller or mechanic, five or more skilled laborers, two or more truck drivers, and several unskilled laborers which were to be provided by the villages. The engineer was in charge of the project operations, the sanitarian and aides worked on the public health educational aspects, including participation by the villagers, and the remainder of the project crew was for construction of the water supplies and latrines. It was planned that upon completion of the project one of the sanitarians or sanitarian aides would be left to continue work in the area on the maintenance of the pumps and other facilities constructed. In addition, he would work on general sanitation. This pattern, in some instances at least, should result in providing a nucleus

which will expand into a more comprehensive public health service on the local level.

India's immediate objective in May, 1955, was completion of the 250 urban projects which were scattered through 17 states and the 100 rural projects in 16 states. In addition, she was making plans for a continuation of this program under the Second Five-Year Plan. During the five years beginning April, 1956, the Planning Commission tentatively had allocated the equivalent of about $135 million for federal loans for municipal water supply and sewerage and $62 million for grants to states for rural sanitation. Their plans also included funds for training of 1,000 engineers, 200 chemists and biologists, and 5,000 sanitarians and other sanitation personnel. It was planned, also, to give attention to research and to make funds available for this purpose through the Indian Council of Medical Research. This would be in support of federal and state research programs and for grants to individuals and to institutions.

Conclusions

This program and the plan for its extension might be considered too large for efficient operations and effective results, and there would appear some basis for such a conclusion. On the other hand, one must recognize the great toll from water- and filth-borne diseases and the extremely large number of people to be provided with safe water supply and sanitary excreta disposal facilities. The national water supply and sanitation program as established and projected into the next five years, if continued on the same basis, should meet the municipal needs in 20 to 25 years in a reasonably satisfactory manner. The rural portion will take much longer, perhaps 50 years, under economic conditions comparable to those existing in 1955. Of course, this is a rough estimate of the time required, but it may be on the conservative side.

Improved water supply and sanitation is only one phase of India's comprehensive program for rebuilding her country. Comparable progress is being made in agriculture, education, and industrial development. The effect of these phases of the development program on each other and on the country as a whole, may well represent geometrical instead of arithmetical progress. Should this be true, it is likely that the resultant rise in the standard of living and buying power will reduce considerably the time required for India to reach her commendable goal—safe water supplies and a high level of community sanitation with the resultant control of water- and filth-borne diseases.

Time in India's culture has a different meaning than in the Western world. She has one of the oldest cultures and she has some major problems which she lived with through the colonial days. Yet, India, as an independent country, is less than 10 years old. She has vigorous plans for building a new India. These plans are shaped within her existing economy. The prevalent attitude of the government officials, from the capital in New Delhi to the municipalities and villages, is progressive. They are striving hard and they are earning their country's progress.

The United States' technical assistance to India's water supply and sanitation program consisted of about 5 per cent of the total cost. It included the services of a few sanitary or public health engineers and sanitarians. Most of the expenditure has gone for purchase of equipment and materials which had to be imported. This project is an excellent example of technical assistance in a field which is fundamental in the development of the country. By providing a small percentage of the total cost, the United States' assistance was the catalytic agent in the formulation

of a program with tremendous potentialities, humanitarian as well as economic. Adequate water supplies and sanitary means of excreta disposal are essential public health services and are prerequisites for further economic development. Of even greater long-range importance, however, is the creation of a nucleus public health engineering service which will be strengthened to provide and maintain a healthful environment for a new India.

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Foodborne Disease Outbreaks

"Procedure for the Investigation of Foodborne Disease Outbreaks" has been prepared and published by the International Association of Milk and Food Sanitarians as an aid to public health workers. The material is arranged in four parts: Procedure for the Investigation of Foodborne Disease, for Collecting Food Samples for Laboratory Examination, Identification of Human Sources of Contamination, and Report Forms. Since the recommendations are not meant as a substitute for qualified and trained investigators, the scope of the outline is limited to those matters that require prompt action, such as locating and interviewing exposed individuals, securing menu data and samples of leftover foods, and submitting samples to the laboratory. The International Association, Box 437, Shelbyville, Ind.; 50 cents, reductions for quantity orders.

Action Research as a Method in Public Health Education

ANGELES CEBOLLERO, M.S.P.H., and MARÍA E. DÍAZ, D.S.W.

The lively discussion that followed this paper underscored the close and useful relationships between involvement in sociologic research and the conventional training areas in the public health educational field. In some degree these values will become apparent to the reader.

The aim of this paper is to describe a teaching experience in the utilization of action research as a method in the training of public health educators at the Department of Preventive Medicine and Public Health of the School of Medicine at the University of Puerto Rico. The department has developed a curriculum leading to the degree of master in public health education, and is designed to train qualified persons in the field of health education to fill positions as health educators in the Departments of Health, Education, Agriculture, and other official and private agencies. The program embraces one year of combined academic studies and field practice.

In the year 1951 the Social Science Research Center of the University of Puerto Rico started a large-scale research program on the social and psychologic bases of family planning and fertility.* The project was divided into three parts: Stage I—Exploration; Stage II—Quantitative Verification; and Stage III—Experimental Validation, "the stage of checking the applicability of findings from Stage II in a program of education with still other families selected to meet the requirements of a control experiment." † It was in this last stage that the cooperation of the Department of Preventive Medicine and Public Health of the University of Puerto Rico was requested. Since the proposal seemed to be a promising experience for the students in health education, the department agreed to cooperate.

In the analysis of the findings of previous stages of the program three groups of factors affecting family planning and fertility were identified: (1) values inimical to planning and limitation of family size; (2) deficiencies in family organization (especially lack of communication between husband and wife); and (3) lack of adequate knowledge about the use of birth control methods. The experiment consisted of testing the effectiveness of a series of educational programs with semirural families, and measuring the changes from pre- to postinterviews. These educational programs were of three different types of content and each application of this content was duplicated in two methods of approach. The types of content were: (1) one in which em-

* This study has been conducted by Reuben Hill, Kurt Back, and J. Mayone Stycos.

† Reuben Hill, Kurt Back, and J. Mayone Stycos. "Family Actions Potentials and Fertility Planning in Puerto Rico." Reprinted from Current Research in Human Fertility. Milbank Memorial Fund, 1955, p. 2.

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phasis was to be given to the value of planning together with information on methods of birth control; (2) a second type with emphasis on family organization (especially communications between husband and wife); (3) and the third type was a combination of the above two (values of planning, communication and information). The two methods of approach were structured meetings and personal distribution of illustrated pamphlets.

Each type of content was to be presented in a series of three meetings, each a week apart. The first meeting consisted of the introduction of the general topic (planning, communication, or both) by means of role-playing demonstration by the group leaders; then the participants were involved in the role-playing and this was followed by a general discussion of the points brought out in the scenes. The second session started with the movie "Roots of Happiness" which dealt with problems of family life in Puerto Rico. The discussion after the film was led according to the type of content of the program stressing either family planning, family organization, or both. The final meetings on the values and combined programs were in charge of physicians who gave the information on the physiology of the reproductive systems of male and female, and methods on birth control. In the family communication type of content the last meeting consisted of a general review and discussion of the points brought out in the previous meetings.

The pamphlet groups did not attend meetings. The approach to them consisted of the personal delivery of a series of pamphlets having the same content of the meetings. Three different types of content and two different approaches gave six different educational programs.

To plan and carry out the educational phase of the research project a series of meetings were held between the faculty of the Department of Preventive Medicine and Public Health and the project directors of the Social Science Research Center. These led to the appointment of a permanent staff * for the project who were entrusted with the responsibilities of: training the leadership teams who were to be drawn from the students of health education; motivating the students and giving them a feeling of the importance of the study; evaluating and selecting the students to form teams of leaders; cooperating with other phases of the experiment in seeing that the necessary controls were observed; arranging group meetings; and finally, of supervising the students during the field work phase of the experiment. The permanent staff worked very closely with the directors of the research project.

Planning the Training

The training was planned jointly by the staff of the Department of Preventive Medicine and the Research Center. During the planning process the staff agreed on several premises to serve as guides:

Knowledge per se does not lead to change in behavior, so the methodology agreed upon had a dual character including general sessions and laboratory work. The former were to be devoted to information given through conferences, demonstrations, and discussions. The latter involved the procedure of dividing the class in groups of four members for the following purposes: to prepare some of the pamphlets that were going to be used in the experiment; to practice as a team some of the functions of leadership; to practice some technics such as role-playing, interviewing, use of films, and other visual aids; and to learn some principles of recording meetings.

The content would include group problem solving, and an understanding of various con-

* Howard Stanton, assistant director of the Family Project; María E. Díaz, associate professor of social work; and Angeles Cebollero, assistant professor of health education, share major responsibility in the planning and execution of the educational experiment.

cepts of leadership and authority. The staff would work as a team to set the example.

The training climate would be permissive so that the students would feel free in expressing their ideas, opinions, and feelings and in accepting criticism and help from others without feeling threatened. The student group would be involved from the very beginning in setting the goals and planning the course.

The staff's special interest in evaluating the training was shared with the student group by asking their cooperation in the use of some evaluation instruments such as an ideology test,* an attitude test, sociometric test, and a content test.

Development of the Training

In terms of time the training program lasted from October, 1954, to May, 1955. Between October, 1954, and January, 1955, the students met weekly for four classroom sessions beside occasional visits to the field and agencies that were involved in the project. From February to May the students were engaged in the execution of the program in the semirural communities chosen for the experiment. The experiment in itself was a very important part in the training since the planning, conduct, and evaluation of the meetings provided the students with a practical experience and the opportunity to apply theory while under the supervision of the staff.

To present a complete picture of the training program is beyond the scope of this paper and it would require a description of every classroom session and the 40 community meetings with their corresponding evaluation sessions. A broad view of the experience would characterize it as a workshop in which both the staff and the students were involved. Its highlights can be described as follows:

1. At the first meetings with the students, a general orientation of the previous stages and findings of the research program were given to interest them in the experiment and so that they would understand the importance of the task assigned to them. Their role in the project was fully discussed. A set of questions was given to them inquiring into their thoughts and expectations in relation to goals, content, and methods. After the discussion of the results of the questionnaire, these goals of the training were set up by the class: (a) to get acquainted with the theory and concepts of group work as a method in health education; (b) to practice in the classroom and then in the real situation some of the skills used in group work; (c) to learn how to plan and conduct group meetings; (d) to learn how to plan, design, and write a pamphlet; and (e) through the process to try to see one's own attitudes and behavior so that self-improvement could be achieved.

2. The process by which the objectives were reached were just as important as the objectives themselves. The students shared in planning, in carrying out, and in evaluating the activities.

3. The over-all content covered the philosophy, general principles of group leadership, and group functioning. The information and skills were seen by the students in terms of their applicability to their role as health educators.

4. To conduct the experiment the students were divided into three teams according to their own choices of each other (sociometric tests were used) and the preferred topic. The technics of planning and conducting meetings were emphasized. The students performed as leadership teams in 20 large group meetings and 20 small ones. Within their teams they rotated from session to session taking alternatingly the positions of leader, co-leader and observer. In this way the members of the teams developed skills and practice in the different roles.

* Courtesy of the National Training Laboratory in Group Development.

5. Some other experiences the students had during the training included:

¶ Use of resource persons for the layout and illustration of pamphlets and other visual aids; for checking the vocabulary of the pamphlets; and physicians who would give medical information at meetings.

¶ Use of guides for observing leadership functions and for the evaluation of meetings.

¶ Making arrangements for the physical facilities and visual equipment necessary for the meetings; recording their meetings, a task which gained significance in their eyes since the material was to be used for research.

¶ Preparation of pamphlets. Nine pamphlets were prepared by the students and the staff.

6. Staff members gave counseling and supervision services to the different teams while they were doing the work in the field. This was very important since in spite of all the planning there were problems and difficulties that had to be faced and handled adequately.

Conclusion

In the opinion of the staff of the Department of Preventive Medicine and Public Health, the teaching experience in the use of action research in training health educators had apparently good results for the time and effort that were spent. It offered an excellent opportunity to develop a course in group work of a functional character and in a real situation. To quote some of the students: "The work we did in the project helped me a lot in becoming more objective"; "I feel sorry for the students of this year who are not having the opportunity to work with the personnel of the Social Science Research Center." "We worked hard but we learned a lot." "You learn more when you are faced with the problems and difficulties of a real situation."

It was the first experience for both the staff and the students in working in cooperation with social scientists, thus gaining better understanding of the contribution the social sciences can offer to the field of health education. The staff learned by experience some of the difficulties in trying to balance the two objectives of training students and carrying out action research. The project was enjoyed both by students and staff. The use of action research as a teaching device is a good educational experience and deserves to be used more.

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High School Health Service Problems as the School Doctor Sees Them

MAURICE M. OSBORNE, JR., M.D.

In a very few paragraphs this experienced observer suggests a formal organization to meet the needs of the high school student in difficulties.

While the adolescent has special problems arising out of the stage of physical, psychosexual, and social development at which he finds himself, there is another aspect, environmental in nature, which places his problems in a special light.

Probably at no other time in an individual's career does he find himself the legitimate concern and responsibility of so many separate individuals. Particularly in the modern high school, he is apt to have a home room teacher, anywhere from four to six teachers of special subjects, one or more responsible for his physical education, and a set of parents—all of whom he sees almost daily. In addition, other people become concerned for him at varying intervals; school nurse, school doctor, guidance counselor, principal, and various out of school resources, such as family doctors and clinics. In any given case it is quite possible to have no fewer than 16 people legitimately concerned in the welfare of a high school pupil. Fortunately, the majority of adolescents steer their way rather cannily through this maze and emerge from it a good deal closer to independent adulthood, both because of and in spite of the hazards.

However, when a problem arises in a high school child, the several adults individually in contact with the child may, and often do, follow one of several courses: (1) Never become aware of the problem at all and persist in attitudes and actions detrimental to the child; (2) become "concerned," but make wrong interpretations on their own and adopt wrong attitudes and actions; (3) become "concerned," but feeling that they lack resources to turn to do nothing; or (4) become "concerned" and feeling inadequate to handle the situation themselves refer the problem to somebody.

It is worth while to emphasize the "somebody" in this place, as the person to whom the problem is referred is often selected for reasons remote from the child's problem. Some health problems, for instance, are referred by teachers in one department to their department head because that is the rule. Some disciplinary problems are referred to the school doctor initially because the referring party feels there may be something wrong with sleeping or eating habits.

Now to compound the trouble, there is not just one individual following one of the above practices, but several. One refers the child to the guidance counselor, another refers to the principal. The principal refers to the doctor, the doctor refers back to the guidance man, while another teacher remains blissfully unaware of the hubbub. In addition, the parents, (perhaps not consulted at

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all) may have initiated some referrals on their own—to a family doctor or clinic. I know of one case in which a child was being referred simultaneously by the teacher to the principal, by the guidance counselor to the school doctor (who in turn was trying to refer to a juvenile probation officer for referral to the judge for informal referral to a foster home), and by a family service to a psychiatrist. In the process the problem was magnified, and the child very nearly came to receiving no help at all, as everyone worked at cross-purposes.

Analysis of this situation which, although not universal, must be present in many high schools and the communities they serve reveals several important deficiencies: (1) Lack of communication; (2) lack of adequate information on which to evaluate problems, with subsequent misinterpretation; (3) rigidity in one area coupled with haphazard referral in another; and (4) lack of deliberate planning and definition of responsibility for the handling of problems.

As a school doctor, I am sure that many of the problems referred to me were sent because of a hope that I would fill the responsibility vacuum at least in part. Certainly, many children arrived on my days at the high school without either them or myself knowing why they were referred. This seems the best place to enlarge on the subject of responsibility. If all the individuals concerned with an adolescent's problem are to work together, rather than at cross-purposes, coordination of their efforts is necessary and as in all group efforts, some form of responsible leadership is essential. Ideally this should be provided by the parents and with increasing maturity by the child himself. However, when problems arise both the parents and the child are often unable to solve their problems and are desperately looking for leadership. It is here that some person or persons able to understand the child's problems—in school and out—must be given clearly-designated responsibility. This responsibility is not to be defined as that which will make final disposition or arbitrate in any authoritarian way. Rather it is to be defined as a responsibility for being aware of all problem cases, for gathering and properly disseminating accurate and full information, for serving as the channel of communication within and without the school so that referrals take place in an orderly way and relations with families, private doctors, and other outside agencies are organized for the child's benefit.

Having tried to accomplish this as an individual physician, and having seen others try to do this as principals, counselors, and nurses, I am convinced that no single person in the school-community complex has either the time or the knowledge to assume this responsibility alone. The gathering of pertinent information in one case alone may require many hours. Its interpretation and fruitful dissemination often will require several skills and disciplines.

What I propose, then, for a sane approach to the problems of the adolescent in high school is an organization created along the following lines:

First, appointment of a problem-solving, or guidance committee, to be made up permanently of representatives from the major disciplines concerned with the welfare of adolescents—a guidance counselor, an administrator, a teacher, a physical educator, a physician, a nurse, and ideally a psychiatrist and social worker. The committee should arrange for consultants to be appointed who, if not permanent members, could be called to sit at some meetings. As problems concerning individual children are presented, their own teachers should sit in an ad hoc capacity with the committee.

Second, a mature individual, possibly a guidance counselor or school nurse or

social worker, should be appointed as an executive to the committee, with full time devoted to this work. The job of this individual would be to serve as the channel through which all problems would come to the committee's attention and the gatherer of all pertinent information from classroom, health office, and home, using other people where necessary to gather the information. Finally, after preparing cases for committee discussion, recommendations would be coordinated by this executive.

The committee would meet regularly, preferably weekly, with time specifically allowed in the members' schedules for it. All problems seriously bothering students or their teachers and which seem likely to require referral or other action would be brought to the coordinator by the person first becoming aware of them and screened for the committee. After preliminary evaluation in committee, joint and informed decision on further referrals could be made and the method of accomplishing them worked out.

Finally, the school person most suitable to act as the student's adviser and liaison with the home and with outside medical resources could be selected in committee and then be well briefed. This adviser-liaison person might be selected on the basis of the child's trust and admiration for him, or because the problem called for special skills. In any case it would be a planned and deliberate assignment rather than a haphazard one. From this point the chosen adviser would work closely with the child using, through the coordinator and if necessary the committee, other needed resources.

While this type of program would be costly in time, money, and effort, it would effectively coordinate all the influences surrounding the child and prevent them from tearing him apart. It would also give a broader base to the interpretation of problems in their total setting than can be provided by any single "adjustment counselor" guidance person, principal, nurse, or doctor.

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The School Health Program in Puerto Rico

VIRGINIA T. de BELAVAL, M.P.H.

This is the story of an island-wide health education program set up eleven years ago in Puerto Rico. It stresses the role of the Department of Education in relation to the total program, and the problems that arise in its development.

Our public school health program in Puerto Rico is similar in objectives, phases, and methods of work to those being carried out in the United States. Perhaps we differ somewhat in the type and magnitude of the problems to be solved. Another important variation is the initial planning and development of our island-wide program as it exists today.

Our health education program was initiated 11 years ago. Inasmuch as we were setting up a new program, and health education at that time was still a fairly new and experimental field, we were able to plan a program well adapted to our specific needs and situation. The planning and development of the program became the joint responsibility of various governmental and private agencies whose aim it is to foster and improve the health of our people.

A Coordinating Committee on Health Education was appointed to formulate the objectives of the program at the state level and to coordinate the work being carried out by various agencies. The School of Medicine, the College of Education of the University of Puerto Rico, the Tuberculosis Association, the Department of Agriculture, the Agricultural Extension Service, the Department of Health, and the Department of Education assumed the responsibility for implementing the program.

It is the Department of Education's responsibility to provide each student enrolled in our public schools with the necessary tools to maintain and improve his health, to better his environment, and to utilize the health services adequately. This threefold objective is intimately related to the second objective: to develop habits, attitudes, and behavior patterns that will assure the enrichment of individual and community health.

As of this moment the Department of Education employs 43 health educators in its field operations. At the central office the staff comprises two general supervisors in health education and a psychiatric social worker, all of whom have a master's degree in public health education from accredited universities. Our 43 health educators work in 64 out of the 76 school districts into which the island is divided. We are convinced that a health educator for better results should be assigned to an area in which the school population does not exceed 10,000. In line with this policy we have assigned two or three health educators to our larger districts and combined two districts of smaller size under one health educator.

Twelve school districts are still deprived of these services, but we feel confident that within the next six years we shall be able to achieve our goal, namely, 62 health educators. To this end the Department of Education has been granting five scholarships each year to teachers fulfilling the requirements for admission to the School of Public Health of the University of Puerto Rico.

Our health educators in their field

operations work under the supervision of the superintendents of schools of the districts to which they are assigned. In the field they promote the program and work with the school personnel—teachers, principals, etc.—in the organization of a health program centered on such problems as directly affect the health of the students and the community. Hence, you may find that in each school district a local program will have to deal with efforts toward the betterment of the health problem of the entire community or part of it. We believe that a health education program must take into consideration the people's awareness of their problems, and their cultural background and ways of life, and that its success will depend largely on our ability to promote constructive action—communitywise.

There are, however, three areas that must be taken care of in every program, which in turn involve island-wide problems. These aims are long-range in their scope and some should be included in the educational program as permanent fixtures.

The first is a healthful school environment that will enable the students to live and develop physically, mentally, and emotionally. Many of our environmental problems are intimately related to the economic problem. We still have a number of school children in rented schoolrooms or dilapidated school buildings. This is particularly true in the rural zone, where 965 of the existing 4,319 schoolrooms are rented and the majority do not meet the minimum sanitary standards.

Due to our school population problem, estimated for 1956–1957 at 544,817, a great number of our school buildings are used in double shifts, including adults in night sessions. This heavy load on buildings constructed for a limited number of students brings in its wake sanitary problems, such as poor plumbing, inadequate equipment, lack of cleanliness.

In the Department of Education a School Planning and Construction Division works on a program that will solve we believe most of the major environmental problems. The educational phases of building maintenance, hygienic conditions, and a healthful mental and emotional climate in the physical plant will continue to be one of the principal aims of the health program.

The second area to which must be given adequate attention is that of the health services. Health education by itself is not sufficient to insure attainment of our proposed objectives. Indispensable are adequate health services to discover and correct physical defects. The maximum use of the available services, limited though they are, demands that teachers be given the responsibility of screening the students through tests and daily observation. They are trained to do this work locally by our health educators. The students who in turn, in the estimation of the teachers, need medical care are referred to the public health nurse. She determines those who should be examined by the physician at the school clinic. Thus, the children most in need of medical care receive attention.

The health educator assumes responsibility for organizing and supervising medical services. In Puerto Rico all medical services function under the Commonwealth Department of Health. An Interdepartmental Committee on School Health, with representatives

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from both the Department of Education and the Department of Health, meets regularly to plan the optimum utilization of medical services. This is one of the best working committees of which I have ever been a member. Prior to the current year all medical services were limited to the first six grades. We are now establishing five adolescent clinics on an experimental basis to determine specific health problems common to our adolescent population. These, we hope, will help us to establish a sounder health education program at the high school level. The Interdepartmental Committee has recently organized an intensive training program in behalf of the medical and teaching personnel participating in this project. The program includes the organizational aspects of the clinic, the functions and responsibilities of the personnel, and the physical, mental, and emotional characteristics of the adolescent.

The third area to be dealt with in every program is obviously that of health instruction. Our basic program deals principally with problems of primary importance in the Puerto Rican environment, that is, sanitation, nutrition, common diseases, personal hygiene, and mental health. During the last few years, accidents have become the principal cause of death among the school-age group. Tuberculosis, diarrhea, and other communicable diseases are now well under control. Our curriculum thus emphasizes safety rules and a broader safety program to meet this growing threat.

In the elementary school health instruction has been carefully planned and organized within the Community Problems Program. In the first three grades we stress the formation of desirable habits and attitudes while in the fourth, fifth, and sixth grades we convey knowledge and try to develop scientific attitudes regarding the individual's own health and that of his community. We stress the importance of making the teaching-learning act as related to life situations as possible. Eating in the school lunchroom, undergoing a physical examination, and the nurse's visits, for example, should all be related to health teaching.

In the secondary school health teaching is integrated within the various subjects. At the present time we are analyzing the health concepts that could be legitimately included in each subject area with the purpose of organizing health teaching more systematically. So far, we have found duplication of content in the teaching of nutrition, which is included in biology, home economics, social science, and Spanish, whereas safety and first aid, as such, do not appear in any subject.

We shall coordinate this effort with the general supervisors of secondary education in the revision of the health material to be included within the content of the various subjects.

One of our main problems in health teaching is the lack of booklets especially designed for children at different age levels. We are giving special attention to this task and have prepared a long-range plan within which each grade will have two or three booklets based on a specific health problem to be studied at that level. So far, we have edited two pamphlets on intestinal parasites for fifth and sixth graders, and translated "Understanding Yourself," by Dr. Karl Menninger, for secondary schools, the well known primer on adolescent psychology.

Our mental health program is based on the simple assumption that the improvement of human relations among the school personnel, and of the teacher's understanding of the emotional and mental development of the child, will attain, not only better results in learning but better adjusted individuals within the school milieu at every level. We have no formal, systematized mental

health program. We carry out activities and conduct studies which, we believe, will give us yardsticks to measure the results we wish to attain, the educational methods best suited to our culture, and the evaluation tools we need.

In 1953 our Department of Education, in coordination with our Department of Health, started an inservice training project in mental health for secondary school teachers. The faculty in charge consisted of a psychiatric social worker, a psychiatrist, and a psychologist. The purposes of the project were: (1) to help teachers improve their understanding of children; (2) to establish wholesome conditions in the classroom in which children can learn more readily and develop healthier personalities; (3) to help teachers become aware of their preventive role in terms of personality maladjustments of pupils; and (4) to determine whether or not the pupil's capacity to learn and his achievement improve as a result of this attention to the emotional problems of teachers and pupils.

During the last two years meetings have been held twice a month with a group of 15 teachers. Monthly meetings have also been held with a group of 27 students attending the eighth and ninth grades. As yardsticks for measuring the effectiveness of the project, five tests were administered to the pupils. To compare results among the children we selected a control group from another school district. A physical examination was given to the 27 pupils. The Minnesota Teacher's Attitude Inventory was given to all the teachers included in the study.

In May, 1956, we administered to the students, for a second time, the same tests. At present we are analyzing the results. Although we still have no final answers, we submit that the group we are working with have improved their learning capacity. We also found that the relations between the group and the teachers improved notably. This year, as a new phase of the study, we are making plans to work with the parents of the pupils.

Last year we started a research project with supervisory personnel to find out their knowledge of, and attitudes toward, a school mental health program. Other purposes were: (1) to evaluate our supervisory personnel as human beings, whose private lives contribute in a positive or a negative way to the learning process; (2) to initiate adequate interpersonal relations with the people who will develop the school mental health program; and (3) to build our mental health program on a practical and realistic basis. We received information from 700 local supervisory officials regarding their age, place where they worked and live, present position, length of time in present position, monthly salary, and net salary, years of experience, number of children, hobbies, etc.

The second part of the study consisted of selecting 273 persons as a sampling of the 700. To this group we sent a second questionnaire asking for: (1) their definition of mental health; (2) activities in our school system that contribute to the improvement of the mental health of the pupils; and (3) suggestions they may have in relation to activities that can be carried out in our schools for promoting the mental health of pupils. Both questionnaires were tabulated and studied. We believe that we now have a greater knowledge of the individuals we are working with, what they are doing, and what they believe can be done at the local level to promote a health program. We were pleasantly surprised to find out that most of the supervisory personnel have an ample concept of what mental health is.

The health educators have been given intensive training in the field of mental health, the phase of our health program in which they feel they need more orien-

tation. For this reason, we have left entirely in their hands the date for the beginning of work in mental health. Once they inform us of the program they plan to carry out the central office will offer them the supervision and materials they need. Last year 16 towns were engaged in carrying out mental health activities.

This year our Department of Education is carrying out a study of children who are retarded in reading. Because of the obvious relation between the ability to read and the mental, emotional, and physical conditions of the children, we were chosen to direct this project. The study aims: (1) to determine the magnitude of the problem; (2) to identify the students; (3) to discover, in so far as possible, the specific causative factors; (4) to propose recommendations which may solve or attenuate the problem. We know that there are children in our schools who do not learn to read during the first three grades. A previous study in a single school district revealed a high proportion of children who were below average intelligence among the nonreaders. Therefore, we have administered tests of general ability as well as reading tests to each pupil in the group included in the study.

These tests were administered to a selected sample of nearly 5,000 children who, at the time, had completed three years in school. The sample was taken from nine towns chosen on the basis of enrollment, zone, and geographic location. The personnel chosen to conduct the study at the district level were health educators, social workers, and guidance counselors. They were given special training in the administration and correction of the tests and in the organization of the research study at the local level. The tests are to be used as screening devices to identify those with low general ability and lack of reading achievement or both.

A questionnaire is being prepared and will be filled out for every student who participated in the study. It will contain data on the socioeconomic status, family, health, teachers in previous years, books, etc. The physicians at the local level will make a complete physical examination of each child. These questionnaires will be analyzed to determine what factors influence the children, either negatively or positively.

This has been a bird's-eye view of our health education program, intended to apprise you of what we are trying to accomplish in health education in the schools of Puerto Rico.

Data Desired on Facilities for Adult Emotionally Disturbed

E. Nelson Hayes is compiling a descriptive directory of hospitals, sanatoria, clinics, and other facilities, both public and private, for adult emotionally disturbed and mentally retarded. He asks readers of the Journal to send him information about facilities in their communities, giving for each such details as the complete name, address, and name of director.

In format the volume is planned to resemble somewhat the "Directory for Exceptional Children: Schools, Services —Other Facilities" edited by the same author and published by Porter Sargent in 1954.

Please address E. Nelson Hayes, 11 Savoy Road, S. Hamilton, Mass.

Physicians' Views on the Level of Medical Information Among Patients

LOIS PRATT, Ph.D.; ARTHUR SELIGMANN, M.D.; and
GEORGE READER, M.D., F.A.P.H.A.

This paper usefully explores the need and practicability of informing patients about the nature of the current illness.

In organizing medical services for ambulatory patients those planning them often forget the patient in the desire to offer all that is considered necessary for adequate scientific care. Likewise, they may overlook one of the primary purposes of any medical care activity: to provide an optimal environment for the development and continuance of the doctor-patient relationship. Essentially this relationship resolves itself into a give-and-take between two human beings, the nature of the interchange being determined by a number of factors, such as the previous experience and knowledge of the participants, expectations of each toward the other, and ability to communicate. The effectiveness of the doctor-patient relationship should be one of the fundamental considerations in evaluating adequacy of medical care.

To shed some light on the adequacy of patient care in the medical clinic of a large metropolitan medical center a number of studies have been made. This paper will report findings that bear on the question of communication of information between physicians and clinic patients; more specifically, it will focus on the physicians' attitudes and beliefs about patient information. In addition, to provide a context within which physicians' views may be interpreted, a summary of findings on some related questions will be presented.

Methods

In the medical clinic 214 patients were queried about etiology, symptoms, and treatment of ten common diseases, namely tuberculosis, diabetes, syphilis, arthritis, menopause, asthma, cerebrovascular accident, stomach ulcer, leukemia, and coronary thrombosis. A 36-question multiple choice test was used. A sample question follows:

Tuberculosis of the lungs is due to:
1. Prolonged exposure to the cold
2. Infection with a germ
3. Anemia and vitamin deficiency
4. Don't know

These same questions were then made part of a questionnaire administered to 89 physicians in the same clinic which was aimed at determining how much information these doctors thought laymen should know and how much they thought patients in the clinic did know.

The third part of this study consisted of an intensive longitudinal analysis of 50 patient-physician relationships, the 50 patients being randomly selected from among those making new appoint-

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ments in the medical clinic. Each patient visit to a physician in the clinic was observed and a record kept of the activity and conversation that took place; in addition, the patient was interviewed before making the first visit to the physician and after each visit with him. The observations of the patient-physician contacts provided data on the ways the patient's illness was discussed, while interviews with patients revealed their views of what they had been told.

Results

The multiple choice test of knowledge about ten common diseases revealed that, on the average, the clinic patients could correctly answer 55 per cent of these rather routine questions. The range was from one-third correct answers for patients with less than an eighth grade education to two-thirds for those with a high school education. It was also found that knowledge varied considerably by disease; knowledge of coronary thrombosis, for example, was particularly low, with only two-fifths of the information answered correctly.[1]

In addition a random group of 50 new patients were questioned on their arrival at the clinic about the condition they suspected they had. Some of these patients had received care for this suspected illness from another clinic or physician, but the majority had not. Most patients were found to have focused their concern on a particular disease possibility, and the findings pertain only to this group who suspected a particular disease. No patients were found to have a thorough understanding about all three aspects about which they were questioned—the etiology or nature of the illness, the usual treatment, and the prognosis. Four patients were classified as having thorough understanding of the etiology or nature of the illness; but none had a thorough understanding of the treatment or prognosis. The majority were classified as knowing almost nothing about the three aspects of the disease. The minority were classed as having some understanding of it. On the basis of the findings it may be concluded that the patients studied were rather poorly informed about several common diseases and about their own suspected condition.

The next question to be considered, then, is what difference does this make? How does the patient's knowledge of disease influence the way the patient interacts with the physician and the quality of care received from the physician? It was not possible to determine the effect of the patient's level of knowledge, because no patient in the sample was well enough informed about his disease.

What was observed, however, is that the patients in our sample participated with the physician at an extremely low level. They seldom requested information from the physician (one-third of the patients never asked a single question on any visit), they seldom asked the physician to do anything, and seldom even made a statement to direct the physician's attention to something. While it is assumed that the physician should direct the conversation and activity, complete lack of initiative by the patient may be dysfunctional for the physician as well as the patient. While it has been impossible to test whether this low level of participation by the patients was related to their low level of information and understanding of illness, the simultaneous presence of these two conditions is consistent with the notion that they are related.[2]

What are patients' attitudes about re-

1. These findings are reported in more detail in a paper to appear in the Journal of Chronic Diseases titled "Level of Medical Information among Clinic Patients" by Arthur Seligmann, Neva McGrath and and Lois Pratt.

2. An average of 1.4 requests for information per visit, 0.5 requests for action, and 2.7 statements to direct the physician's attention or to volunteer information.

ceiving and demanding information from physicians? Before attempting to modify existing patterns of communication, it would be wise to know what information patients want to obtain from physicians; for if patients expect more information than they are now receiving one would proceed differently than if they expect and want little information. On the basis of our study data it has been concluded that for the clinic patients studied, there was no demand for detailed and fundamental information among the patients; but there is apparently a certain amount of latent interest in receiving more information than they now receive. The findings on this point are summarized: Patients seldom make direct demands for information to the physician, particularly of the sort that would give basic understanding of the disease; their abstract notions about what constitutes a good doctor seldom include information-giving as a requisite characteristic; by and large they evaluated their own clinic physicians as performing satisfactorily with regard to explanations and information-giving; but in contrast to the above findings, which suggested little concern with information, it was found that a majority of patients indicated to the interviewer in some direct or indirect fashion that certain specific pieces of information about the disease process, implications of the test results, and so on, were of some importance to them. In general there was very little conscious demand for a thorough explanation of the illness on the part of the patients; but there was an unformulated, latent need.[3]

At least as important as the patients' views on this problem of communication are those of physicians. The attitudes of physicians determine, in part, what patients are now told. Furthermore, it would be necessary to take their attitudes into consideration in any future plan to change communication practices. This would be especially true if it seems desirable to encourage physicians to devote more attention to this problem, for, according to one study, 19 per cent of the internist's time is now devoted to patient education.[4]

What, then, are the attitudes of physicians about having patients know about medical matters? The findings obtained on this question are based on a questionnaire administered to 89 physicians in the medical clinic. Each doctor was asked to indicate for each of 36 facts about disease whether or not he thought the fact should be part of the layman's fund of knowledge, from his own point of view as a doctor who has to deal with patients. For example, did he think laymen should know that tuberculosis is due to infection with a germ, or that treatment for stomach ulcer tries to cut down on acid stomach juices, and so on. These are the identical facts on which the clinic patients had been tested.

Here are the results. The doctors reported, on the average, that 82 per cent of the facts included in the questionnaire should be known by laymen. Only 9 per cent of the doctors thought patients needed to know no more than half the information; while 18 per cent of the doctors thought patients should know it all. The types of information that doctors most commonly thought laymen should know tended to be facts involving a favorable prognosis for a disease. Thus, the physician is a little more anxious that laymen be given hopeful information than that they be given facts on the etiology, symptoms, and treatment of disease. Nonetheless the preponderant opinion was that lay-

3. Our findings on this problem are discussed in more detail in a paper by George Reader, Lois Pratt, and Margaret Mudd, titled "Clinic Patients' Expectations of Medical Care." Modern Hosp. 89:1 (July), 1957.

4. Dowling, Harry F., and Shakow, David. Time Spent by Internists on Adult Health Education and Preventive Medicine. J.A.M.A. 149:628–631 (June 14), 1952.

men should know most of the information in our test.

These findings must not be interpreted as indicating that physicians feel it desirable to tell a patient the full extent of his illness. On the contrary, when the clinical teaching faculty of the same institution were asked how they would feel if a physician in their specialty were "always to tell patients the full extent of their illness," almost three-fourths said they would disapprove.[5] When these two sets of findings are considered together, it suggests that physicians hold it beneficial for laymen to have a rudimentary understanding of illness, but that in actual practice it is often unwise to give a sick patient all the facts.

Do patients now meet these standards of knowledge of the physician? It is clear from the foregoing figures that patients in general fall far short of physicians' standards of what laymen should know. The physicians thought 82 per cent of the test information should be known by the ordinary layman, while patients knew only 55 per cent of it, with even high school graduates knowing only two-thirds of the facts. This represents, then, one measure of the gap between physicians' standards of what patients ought to know, and the actual level of patients' knowledge. The fact that patients fall far short of physicians' standards underlines the suspicion (reported earlier), that the patients may not be sufficiently informed to communicate with physicians with the highest degree of effectiveness.

The next question considered is: How do physicians perceive patients' level of knowledge about disease? Are they accurate in their evaluations, and do they overestimate or underestimate patients' knowledge? This question is thought to be significant in an investigation of communication problems, because physicians' judgments of patients' current knowledge undoubtedly influence what they discuss with patients and how they discuss it. Concerning the importance and direction of this influence, some limited findings will be presented later.

A first attempt to measure physicians' judgments about patients' level of knowledge was made by asking 89 clinic physicians to estimate the proportion of the clinic patient population who knew each of the 36 facts about disease. The estimates were then compared with the actual results on the knowledge test for the patient population. This is admittedly a gross measure of physicians' judgments because they were asked to evaluate an entire group rather than specific patients. Nonetheless, it provides an indication of how they perceive the clinic patients. It was found that well over half the estimates made by doctors were in error by at least 20 per cent, the median error for doctors being 23 per cent. Eighty-one per cent of all doctors had an over-all tendency to underestimate patients' knowledge. This tendency to underestimate occurs in spite of the fact that patients' actual level of information is quite low.

What effect do these perceptions by physicians of the patients' knowledge have on their discussions with patients about illness? The data available on this problem consist of a measure of the physician's tendency to underestimate, overestimate or accurately judge the knowledge of the patient population, and a rating of the amount of explanation given by the physician to one or two patients.[6] It was found that those physicians who seriously underestimated the knowledge of the patient population tended to have more limited discussions with the patient about his problem, than

5. From a study now in progress at the Bureau of Applied Social Research of Columbia University, by David Caplowitz.

6. The first measure is based on the questionnaire study of 89 physicians, and the second on observation of 50 patient-physician relationships.

did the physicians who more accurately evaluated patients' knowledge or overestimated it.[7]

In addition to this statistical relationship, the intensive observation of 50 patient-physician relationships provided countless clues that the dynamics of the situation were somewhat like this: when a doctor perceives the patient as rather poorly informed, he considers the tremendous difficulties of translating his knowledge into language the patient can understand, along with the dangers of frightening the patient. Therefore he avoids involving himself in an elaborate discussion with the patient; the patient, in turn, reacts dully to this limited information, either asking uninspired questions or refraining from questioning the doctor at all, thus reinforcing the doctor's view that the patient is ill-equipped to comprehend his problem. This further reinforces the doctor's tendency to skirt discussions of the problem. Lacking guidance by the doctor, the patient performs at a low level; hence the doctor rates his capacities as even lower than they are.

What are the actual practices of physicians in giving explanations to patients about their illness? Our findings on this question are based on observations of 50 patient-physician relationships during the entire course of these relationships.[8] On the basis of examining all the conversation between patient and physician, an attempt was made to code the amount and type of information given by the physician to the patient as objectively as possible. Five types of information about the patient's illness were considered: (1) reasons for tests; (2) test results; (3) etiology of the illness or what the illness consists of; (4) what the treatment is supposed to do; and (5) prognosis, possible complications, or other statements of what can be expected in the future.

It will not be possible at this time to report on the ways each of these areas were handled by physicians. The findings will be illustrated by discussing just one area—the reasons for tests: one-third of the patients were told nothing beyond the fact that tests x, y, and z were to be done (that is, they were given no explanation of the tests on any level); one-half of the patients were told, with regard to at least one test, what organ or possible disease was being investigated by the test (for example, they might have been told they were to have an x-ray of their chest); the remaining 14 per cent of the patients received an explanation, with regard to at least one test, of the type of evidence the tests would provide, or what the test means in terms of a possible disease.

The findings for the physicians' handling of the other information areas were similar. Physicians were significantly more likely to give some explanation rather than none at all. A small minority received what could be called a rounded explanation, while the majority received a limited number of isolated facts. It was further found that physicians were more likely to avoid completely discussion of the prognosis and etiology, than they were to bypass the more immediately practical issues of tests and treatment. It is strongly suspected that the limited explanations given by physicians in this sample is bound up with the low level of knowledge of the patients and the lack of overt interest shown by the patients in receiving information.

How much do patients learn about their illness from physicians? If a physician explains the problem carefully, does the patient always learn more than when the physician does not give a careful explanation? Are other factors—such as the patient's anxiety, in-

7. Too few physicians overestimated patients' knowledge to analyze this group separately.

8. Both junior physicians and attending physicians were observed. While certain differences were found in the explanations given by these two groups of physicians, the patterns to be reported below apply to both groups.

terest, or education—such crucial determinants of what the patient learns from the physician, that undue emphasis should not be placed on the physician's giving elaborate explanations to all patients? The limited investigation made of this problem consisted of classifying patients in terms of how thorough an explanation their physicians gave them and then cross-classifying patients in terms of whether they improved in their understanding of their condition after interacting with the physician. It was found that the patients who received some explanation were more likely to increase their understanding of their problem than were those who did not receive explanations, but there was by no means a perfect relationship. While the measures are crude, it appears safe to conclude that what the doctor tells the patient is certainly not the only factor determining how much the patient learns about his condition. Because of the small number of cases in the sample, it is not possible to trace what the most significant other factors are which intervene between what the doctor says and what the patient actually learns. Furthermore, it was not possible to ascertain definitively what patients can learn when they receive well rounded explanations, for so few received systematic explanations.

The final consideration is: what difference does it make if a doctor gives or does not give a thorough explanation to the patient about his illness? That is, does it affect the patient's health? It is not feasible at this stage of the research to attempt to determine whether patients who are informed by their physicians actually make better recovery from their illness than those who are not informed. It was thought more practical to attempt to specify some of the more direct and specific effects that the doctor's explanations might have. First, were patients who received thorough explanations able to participate more effectively in the conversation and planning with the physician? It had been strongly suspected from the observations that the patients who were most confused about their condition and about what the doctor was doing or thinking, were the ones who participated least actively in discussions with the physician. Therefore, the number of requests for information made by the patient was used as a crude index of the extent of the patient's participation. It was found that the patients who received some explanation from the physician tended to ask slightly more questions than did those who were given almost no explanation. This finding is far from conclusive, but is consistent with the notion that the patient is able to interact more productively when the physician provides at least a minimum framework of information within which the patient can arrange his thoughts and formulate his questions.

Another possible effect of the physician's explanations might be the extent to which patients accept the physician's diagnosis and plans for treatment. It was found that the patients who received some explanation of the problem from their physicians were slightly more likely to agree fully with the diagnosis and plans of the physician, than were those patients who received negligible information about their condition. The relationship is far from perfect, partly, perhaps, because refined measures have not yet been developed. However, the relationship found does suggest that the patient who receives regular explanations from the physician about what he is doing and what he is finding, may accept more fully the physician's plans and goals, and hence this patient may be better cared for. As reported in another paper, agreement with the physician's diagnosis and plans is apparently a crucial factor; for the patients who agreed with the physician's diagnosis and plans were found to complete their care in every case, while a significant

number of those not agreeing completely with the doctor's formulation, left the physician.[9]

Summary and Conclusions

This paper has reported on findings from studies of problems of communication between patients and physicians in a medical outpatient clinic. It was found that:

Patients were quite poorly informed about their own condition when they came to the clinic and about ten common diseases. It was suggested that this might be partly responsible for the almost complete lack of initiative shown by the patients with the physicians.

The patients gave little evidence of conscious, aggressive demand for information about their condition from the physician; but there appeared to be an unformulated, latent desire for more information among the majority.

Physicians working in the clinic thought that basic facts on the symptoms, etiology, and treatment of common diseases should be known by laymen. The fund of information that physicians indicated should be known by laymen was considerably more extensive than patients were actually found to have.

Physicians apparently cannot judge very accurately the level of medical knowledge in a patient population. The direction of their error was rather consistently to underestimate patients' knowledge, despite the low level of knowledge among patients. Physicians who seriously underestimated patients' knowledge were less likely to discuss the illness at any length with the patient, than were the physicians who did not seriously underestimate patients' knowledge.

A majority of patients were found to have been told a limited number of isolated facts about their condition; few were given a systematic explanation of either the etiology, prognosis, purpose of the tests, test results, or treatment.

Finally, patients who were given more thorough explanations were found to participate somewhat more effectively with the physician and were more likely to accept completely the doctor's formulation, than were patients who received very little explanation.

9. Pratt, Lois, and Mudd, Margaret. Patients' Medical Care Expectations as Influenced by Patient-Physician Interaction. Paper read at American Sociological Society Meetings, Sept. 7, 1956.

1,532 Communities Receiving Fluoridated Water

A Public Health Service report on the status of fluoridation in the United States as of September 1 showed that 1,532 communities, served by 798 water supply systems, are receiving fluoridated water. The population served is 32,319,603.

Problems of Participation of the Family Physician in Medical Group Practice

MURRAY B. HUNTER, M.D., and JOHN H. SLOSS

Reported here is a successful experience in bringing resident medical care to small and rural communities where otherwise it would be lacking.

✠Modern medical care has become a complex service requiring the coordinated efforts of many physicians and other auxiliary talents. The pooling of these skills may be accomplished by referral out of the solo practitioner's office or in a consciously cooperative fashion under one roof in a group practice clinic. Both circumstances serve to underscore the well known fact that the medical specialist is assuming a dominant role in medical practice.[1] The ever-increasing trend toward specialization of medical knowledge and practice has posed a relatively new question for medical educators and administrators, "What is the future of general practice?" [2]

In some of the rural states where traditions of solo general practice have been slow to yield to medical group organization or even to a significant degree of specialist participation in medical care, the trend toward specialization among recent graduates has created the threat of a crisis in physician distribution.[3] Departments of general practice have been created in medical schools, and state agencies have been established to facilitate the location of young general physicians in rural and semirural areas.[4, 5] These educational efforts have been designed to produce a general practitioner of a new type, a sort of medical Superman, schooled in the accumulated practical wisdom of past generations of country doctors; but who is also endowed with the requisite knowledge and habit of mind to bring modern science to the rural bedside. Contrariwise, certain experiments in the organization of group medical care in rural areas have regarded the general practitioner as an anachronism in modern medical practice and have dispensed with his services altogether.

The purpose of this paper is to describe the approach taken by one group practice clinic in providing general physician services in a small town and rural setting, and to evaluate certain other estimates of the role of the general practitioner in the light of this experience. The Bellaire Clinic is a private medical group, organized as a nonprofit association, which was established in the community of Bellaire, Ohio, in November, 1952. A majority of its patients are in coal mining families and are beneficiaries of the United Mine Workers of America Welfare and Retirement Fund. The clinic staff consisted originally of a pediatrician and a surgeon but within a relatively short time its specialist services were expanded to include internal medicine, obstetrics and gynecology, radiology, otolaryngology, orthopedics, and psychiatry.

The city of Bellaire has a population of approximately 12,500. It is located in a county with a population of approximately 85,000. The principal industries are coal mining, steel, and glass manufacturing. It is located in the upper Ohio River Valley. The miners in

the vicinity tend to live in small, sometimes isolated communities of from 500 to 2,000 persons located near what was or still is a mine portal. Many of these communities were considerably larger in earlier times, when the industry employed more miners than it does today. In the period between the two wars a good number of these communities were able to support a resident general practitioner with or without the use of the traditional "check-off" system of prepayment for physicians' services. Since World War II the population of these towns has declined and many older practitioners who have died or retired have not been replaced by younger men.

Despite the fact that the character of medicine practiced in these communities by the previous generation of resident general practitioners was largely empiric and symptomatic, its traditional asset was its availability. Availability meant that the patient could walk into the office with any complaint, with no appointment, on his way to and from work. Home calls were made readily. Emergency care for accident victims was reasonably prompt.

Not long after the establishment of the Bellaire Clinic, trade union miners from several communities, where general practitioner services had ceased to exist or had been sharply curtailed, approached the clinic for assistance in locating doctors. These requests were simply for help in finding a physician to open an office or to re-open an abandoned office. The resumption of practice in these communities was not originally viewed by those seeking it as a part of a regional scheme of care that would integrate the family physician with the clinic in any way. Nor did these appeals necessarily specify a particular quality of physician from the standpoint of academic excellence and training. The principal attributes desired were a readiness to stay in the area after a little money had been made and a willingness to make home calls with reasonable cheerfulness and consideration.

These requests happened to coincide in time with the realization on the part of the clinic specialist group, that for its own reasons, it also was in need of general practitioners to serve as family physicians. In a population in which patients had traditionally relied upon one physician to provide total family medical services, specialists found it increasingly difficult to limit their practice within the confines of their specific training. It was therefore decided to combine the twin demands, both internal and external, for family physicians and to attempt to find general practitioners to fulfill both needs. As matters finally developed, the clinic undertook not only to share its own general practitioners with these communities but to operate and equip their offices as well.

At present each general practitioner spends about half his time in the clinic and the other half in one of three community offices operated by the clinic. Each office has two physicians each working on alternate days. The community offices are located seven, 22, and 25 miles respectively from the clinic facility. The two more remote community offices are visited once weekly by a pediatrician and an internist. The purpose of this visit is to help the general practitioner in the diagnosis and management of his more difficult day-to-day problems. When the general practitioner in the community office refers a patient to the central clinic he is usually present during the consultation which is arranged to coincide with his own in-clinic time. To date, of the total

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number of patients seen in the community offices for all complaints, 38 per cent have been seen by a specialist at least once, either consulting in the community office or in the central clinic facility. For each general practitioner the average daily patient load on his days in the community office is 24 and on his days in the clinic is ten. His average daily hospital census is three and he makes from 28 to 30 house calls per month. His work week averages 48.5 hours. Home calls are taken on a rotating on-call system so that each general practitioner is subject to call one night out of three. Home calls are also made by the internists and the pediatrician on patients whose general management they have undertaken.

In many instances the responsibility for patients in two areas separated by distances as great as 25 miles has proved unnerving to the general practitioner, particularly when he must care for critically ill patients in both areas. While the mechanism for turning over the care of such patients to one's team partner usually works quite smoothly, patients and their families on some occasions do not react with favor to this diffusion of responsibility.

In so far as hospital practice is concerned, general practitioners admit patients to their own hospital services, except for admissions for major elective surgery. In almost all circumstances a patient who is ill enough to be hospitalized is deemed to be ill enough to require some level of specialist consultation. This may take the form of a single consultation with the appropriate specialist or for more seriously ill patients the hospital course may be managed jointly by the general practitioner and the specialist. Formal ward rounds are made twice weekly for educational purposes and also serve as an additional medium of consultation. General practitioners act as first assistants when their patients go to surgery and they do uncomplicated obstetrics themselves. They do not administer general anesthesia. Electrocardiograms and x-rays are reviewed jointly with the appropriate specialist. The extent of surgery performed by the general practitioner may be described as "skin-deep." Node-biopsies, excision of cutaneous cysts and repairs of lacerations are performed by general practitioners, but other procedures, including the diagnostic D & C are the responsibility of the specialist. A copy of the hospital record is made at the time of discharge to be appended to the patient's clinic and community office charts.

While all the clinic general practitioners are in basic agreement with the policy that surgery be performed only by specialists, they have all, at one time or another, felt that this prohibition tended to have the effect of demeaning them somewhat in the eyes of their patients. As has been noted elsewhere many rural people regard only the doctor who wields the knife as the "real" doctor.[6] In this sense, as well as by virtue of the fact that physicians are no longer in residence in these communities but are available only as a part of a larger team, the clinic's outpost community practices have violated traditional expectations in these areas. It is hoped that in the long run the value of surgery as performed by qualified men will become more apparent to these people both in terms of reduced morbidity and in freedom from meddlesome and unnecessary surgery.

At present specialist-general practitioner relationships in the clinic are analogous to those in the hospital situation. The general practitioner manages alone 47 per cent of his patients. Thirty-seven per cent are managed with some degree of specialist participation and 16 per cent are turned over to the specialist for management. Actually, in the clinic, the patient often is hard put to decide who is a specialist and who is not. In

part, this is due to the fact that general practitioners are allotted at least one hour for a new work-up and are thus permitted to approach a problem with a thoroughness in history-taking, examination, and correlation of laboratory and x-ray evidence that is hardly typical of general practice under most circumstances.[7, 8] This generous allotment of time is afforded the general practitioner during his days in the clinic so as to provide a contrast to the conditions of harassment often found in his outpost practice. The preservation of academic habits of work is designed to help insure high quality performance under the greater pressures in his community practice.

All physicians are paid a fixed annual income with no incentive pay or bonus arrangement. There are regular increments in pay for each year of service with the clinic. The schedule of remuneration employed is such that the calculated lifetime incomes of the general practitioner and of the specialist are almost identical. The specialist is compensated for his later start in practice by a higher initial pay depending upon the actual number of years of training required for him to reach specialty status.

Considerable time and effort have been spent by the group in the recruitment of general practitioners. The clinic approached general practitioner selection with the basic thesis that what was required in this job was not so much the ability to do a wide variety of procedures nor to manage problems embracing most or all medical disciplines, but rather the ability to analyze thoroughly a given health problem and on the basis of that analysis to be able to initiate those measures which would eventually resolve the problem. As minimum formal training for eligibility, the group required only one year of internship, preferably university affiliated.

Attitude and motivation were equally important criteria in judging applicants.[9] In interviewing the applicant a particular attempt was made to estimate his ability to function in a cooperative situation in which physicians were expected to evaluate their own work and that of their colleagues continuously in a friendly atmosphere.

In our experience it has not been easy to find young physicians with high qualifications who wish to become career general practitioners. Nevertheless, it has been the hope of the group that it could create conditions of practice for these men that would influence them to remain general practitioners. However, it must be admitted that the preponderance of circumstances has operated to make these young physicians more aware of the personal and intellectual advantages of specialty practice. In no instance has there been discerned among the clinic general practitioners any effect of educational pressures designed to glorify general practice. To date the group has had only one general practitioner whose intent it is to remain so. Should the same criteria continue to be applied in general practitioner recruitment it seems likely that turnover will prove to be a permanent feature of the clinic's general practitioner program. While it is hardly to be regarded as desirable, it has been our impression that this phenomenon does not appreciably compromise the quality of care rendered. Many patients have been impressed by the seeming ease with which physicians, previously unknown to them, are able to draw upon the information contained in carefully annotated medical records in carrying on the continuity of management of a health problem. The medical record is regarded as a means of achieving continuity of care. All records are reviewed by an Audit Committee composed of both specialists and general practitioners.

What has been attempted in the experience described is the creation of a diagnostic and screening extension of a central specialty clinic into the semirural surrounding areas. In addition to diagnosis and screening, the general practitioners who serve in these areas perform all those routine tasks of everyday care that are the traditional duties of the community physician. They are school physicians; they serve the patient in securing for him assistance from voluntary and state and county health and welfare sources, but they have no incentive to, and do not perform those services for which they are not properly trained. Almost as often as not they require the assistance of a specialist before a given health problem is finally resolved. In this respect they violate the traditional concept of the family doctor whose scope of responsibility was almost unlimited.

Many groups and individuals who have devoted themselves to the problems of high quality medical care have come to the conclusion that it must perforce be achieved by some limitation of the scope of service heretofore provided by general practitioners. Such limitations have created the fear in some quarters, the hope in others, that general practice has no proper future in American medicine.

It has been amply demonstrated that the third of the American population residing in rural and semirural areas has a greater need for medical care and receives less than the more urban population.[3] These areas are characterized by proportionately more ill health, relative isolation from medical facilities, little prepayment, and low living standards in general. The general practitioner continues to provide the vast majority of the medical care in these areas and undoubtedly will do so for some time to come. Therefore, the organization of general practice is the key to any program designed to improve the quality of medical care for this segment of our population. The thesis that the general practitioner has no proper future in American medicine seems to us to ignore the real needs of a large number of Americans as well as to overestimate the ability of our teaching institutions to turn out specialists in wholesale numbers.[10] The proper question would seem to be not whether we are to have general practitioners but what is to be the nature of general practice.

The exact role of the general practitioner in the total medical care picture has been a matter of considerable discussion. It has been suggested that better trained general practitioners can provide higher quality medicine within the framework of the existing pattern of multifield general practice.[7] However, present educational efforts toward this end seem to be rather ill-defined in their conception. While not disagreeing with the need for more hospital training for the general practitioner we believe that what is required also is the continuing educational stimulus that medical group practice or an association with a specialty center can provide.[11]

High quality medical care must involve a continuing personal relationship between patient and physician. It has been said that this element is lacking in specialist medical group practice.[9] It has been suggested that the general practitioner is in the most logical position to develop that type of intimate relationship with the patient which can best lend continuity to his care.[12] Many metropolitan specialty groups are staffed by a multitude of part-time specialists and are often housed in large and somewhat imposing edifices. In such situations there is a need for the general practitioner "manager" or family counselor to integrate, explain, and humanize the diagnostic findings. In semirural groups, such as the one described in this paper, the relatively smaller size of

the group as well as the full-time status of its specialists permits them—as well as the general practitioners—to assume the role of the "manager," depending more upon the nature of the problem than anything else. Here the general practitioner's role is more uniquely to provide a link between a relatively isolated community and a specialty center.

We believe that the all-important first contact with the patient may perhaps better be made, not by an internist or other specialist, but by a general practitioner whose work is integrated in some way with group medical practice. Such a practitioner ought to be trained in the thought of the various specialties, not necessarily in their performance. He will be a diagnostician rather than an empiricist. He may not require more than two years of hospital training, but he will require the continuing professional stimulus that group practice can provide. He will probably be on a fixed annual income and will have to be capable of developing attitudes and motivations for work that are considerably at variance with those which have often characterized solo competitive fee-for-service practice. What remains to be determined is whether the young physician, working in this way, will find enough professional satisfaction to fulfill such a community role as a life work.[13] In bringing his own services to the small community, and also by representing within himself the embodiment of a larger number of regionally available talents, it is hoped that he will contribute in significant measure to the health needs of rural and semirural families.

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A Diet Instruction Service for Private Parents—A Pilot Study

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ALLA P. MEREDITH, F.A.P.H.A.

The question explored here is this, can an educational service in dietary matters be brought to those people of a community who are most in need of it? The answer cannot help but be of importance to a health agency concerned with any area of nutritional advancement.

When the physician prescribes a diet for his patient it is essential that the diet be accurately adhered to if any benefit is to be derived therefrom. When the diet must be followed over a long period of time it is advisable that the patient be thoroughly instructed regarding the purpose of the diet and the basic principles involved.

While this instruction is a responsibility of the physician, patients often need detailed counseling when faced with the practical problem of translating diet lists into meals. Adjustments are needed in order to meet individual requirements of the patient in terms of where he eats his meals, who prepares them, business and social obligations, income, and other factors influencing his dietary habits. Modern processing methods in which various seasonings are added to foods and highly advertised "special foods" complicate dietary management. All too often patients depend upon magazine articles and the advice of friends to guide them in their dietary problems. Prepared diet lists with suggested menus can be very helpful to the patient, but they do not answer all his questions, more especially when the diet is complicated by several limiting factors. Thus patients seen in the physician's office may require special instruction. This type of counseling which often leads into menu planning, purchasing, costs, and food preparation demands special knowledge, as well as sufficient time spent in conference with the patient or some member of his family.

To what extent can the physician with a large practice give adequate time and attention to these details? Could he not use the services of one trained in dietetics to assist him with this part of patient education? Obviously a dietary regimen planned in such a way as to follow the prescription with a minimum of change and inconvenience to the patient and his family is going to be more acceptable than one far out of line with usual food habits. An editorial in the J.A.M.A.* points out that sufficient instruction to the patient is necessary to enable him to cooperate and that there is no way to avoid this instruction. Handing the patient a stereotyped diet list does not fulfill this obligation.

The possible need for this type of service in some communities was brought to the attention of the Public Health Service and questions were raised as to the extent that physicians would make use of such a service if offered through a local health department—and what would be the costs? These and other questions needed to be answered in order to determine the advisability of recommending a service of

* Editorial. J.A.M.A. 158:123 (May). 1955.

this type. Through the Heart Disease Control Program of the Division of Special Health Services plans were made to conduct a pilot study in an effort to find answers to these questions. Since the director of the Bureau of Nutrition of the New York State Department of Health and the commissioner of health in Schenectady were vitally interested in the project, sanction of the County Medical Society was obtained and arrangements made to develop the study in Schenectady County, N. Y.

Schenectady, essentially an urban county, is one of the smallest in area in New York State being less than 25 miles across at the widest point. Its population of slightly more than 160,000 is concentrated in the city and the adjacent suburban area. A large proportion of the people are professional, semiprofessional, "white collar," and skilled workers who enjoy a relatively high living standard. The medical needs of the community are adequately met by 217 physicians, two general hospitals having an aggregate of 600 beds, two rehabilitation hospitals with 110 beds, one 50-bed maternity hospital, a 130-bed tuberculosis sanitarium, and approximately 150 beds in seven nursing homes. Dietitians are employed by the two general hospitals; there are none in private practice, although one is employed part-time by a medical group. The full-time Health Department is a function of the city government only, although due to the nature of the county and local conditions many of its activities extend into the county beyond the city limits. Relationships between the Health Department and the practicing physicians are generally good.

Inauguration of the dietary counseling service was accomplished by the nutritionist calling personally upon each physician, her visits always being preceded by an introductory telephone call from the health commissioner to the physician so that the physician might be acquainted with the nature of the project and be expecting her visit. At the time of her visit details of the service, types of diet materials, and methods of reporting back to the physician were discussed. At the same time she was able to obtain from the physician his ideas, preference as to the method of referring patients, and prescribing diets. This procedure was continued until all internists and general practitioners had been called upon—a sampling having indicated that for various reasons most physicians in other specialties would have little use for such a service.

By agreement with the County Medical Society no fee was charged for the service and no patients were seen without a physician's referral. In the matter of referral some physicians prescribed the diet verbally by telephoning the nutritionist before referring the patient; others merely wrote the diet order on a prescription form; while a few utilized a combination of the two methods which, from the nutritionist's viewpoint, was the most satisfactory since she then had prior knowledge of the patient's problems, as well as a written prescription. Instruction of patients took place in the nutritionist's private office in the Health Department, home visits being made only if requested by the physician. Conferences were on an individual basis, or with a man and his wife, which was usual when the patient was a man. Appointments were spaced so as to give the patient ample time to think through all his problems and questions. Patients as a rule preferred to stay long enough on the initial visit to complete the instructions—minor questions arising later could then be

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answered by telephone. An effort was made to give the patient the kind of help he himself wanted, including in so far as possible his food preferences, before making additional suggestions or giving unsolicited advice. If planning several days' menus with him was the kind of help he desired, then that type of service was given.

After the program had been in operation for several months it became obvious that the physicians were not utilizing it as much as had been anticipated. An attempt was, therefore, made to remind them of its existence and that it was to continue in operation. Announcements were made at the regular meetings of the County Medical Society and General Practitioners Association. Appointment cards were printed and mailed to the physicians in the hope that they would be a convenience and reminder and at the same time obviate further confusion caused by patients coming to the nutritionist's office without an appointment.

When the service had been in operation a year some type of evaluation was needed before future plans could be made. We were interested in knowing why some physicians had not made use of the service while others had and why some physicians had referred only one patient whereas others continued to refer patients. We were also interested in the physicians' appraisal of the counseling given patients whom they had referred and whether they anticipated using the service in the future.

In order to obtain this information questionnaires were mailed to all physicians to whom the service had been offered with the request that they check appropriate statements and make comments. Complete return was secured by means of letter and telephone follow-up—a total of 93 questionnaires. A summary tabulation of the items checked by the physicians follows.

SUMMARY OF ANSWERS TO QUESTIONNAIRES

Statements	Number of Physicians *
I have had no patients who needed this type of service	30
I have had no other patients who needed this service	7
The availability of the service slipped my mind	28
I have other sources of help	15
A service of this kind is no help in my type of practice	11
It is inconvenient to use a service located outside my office	6
I do not feel a service of this type should be given through a health department	3
I did not like the approach of the nutritionist to my patients	1
I anticipate using the service in the future	54
I do not anticipate using the service in the future	17

ANSWERED BY PHYSICIANS WHO REFERRED MORE THAN ONE PATIENT

I found the service helpful to:	
(1) most of my patients	14
(2) some of my patients	1
(3) none of my patients	0

* A few checked more than one statement.

Of the 93 physicians who were offered the service, 35 referred patients (roughly 37 per cent) of which 14 referred more than one patient. The greatest number of patients referred by any one physician was 13—this physician referred patients consistently, approximately a patient each month. Two physicians referred their second patients about one year after the first referrals. The others who referred from two to seven patients referred them all at about the same time. The total number of patients referred was 78. The diets prescribed were (in order of frequency): diabetes, caloric restriction, multiple restrictions, low residue, sodium restriction, low purine, and low fat. The average time required in conferences per patient was one hour and thirty

minutes. More often than not patients would make comments indicating that they appreciated and needed counsel; a large per cent of these spontaneous observations were of a nonmedical nature and many dealt with areas in which a physician could not be expected to be versed. The following are typical examples of such comments:

"When the doctor explained in his office I thought I understood everything, but when I got home and started to figure out what I was going to eat, I got mixed up."

"I hate to bother the doctor, he's so busy, with questions like this."

"The doctor gave me this sheet but it doesn't explain a lot of things I want to know."

"Please help me plan some meals. I'm so tired of these on the diet sheet; can't I have something different?"

"You see I'm not supposed to eat salt or anything with fat in it. I was hoping you could look at these recipes in my book and tell me how I can change them so as not to break the diet but still be able to make things the way I like them, that is, as much as possible the way I've been cooking. I understand it can't be just the same."

Discussion

Although the study was originally scheduled to continue for a two- to three-year period, it was brought to a conclusion after 21 months when it became apparent that nothing further would be learned by extending the project for a longer period of time. During the first 18 months only 35 physicians, out of the 93 included in the study, had referred 78 patients. At the outset of the pilot study it had been tentatively planned to continue the service indefinitely by creating a permanent position in the Health Department if the demand for the service warranted it. This plan was, of course, temporarily abandoned; although, we may at some future date initiate a generalized nutrition program which would include a counseling service.

It is highly probable that a need for such a service existed despite the fact that when offered it was not extensively utilized. The many comments by patients, most of which were of a vein similar to those quoted in this paper, were certainly indicative of patient appreciation. In fact, these unsolicited remarks were most illuminating. In addition, a favorable physician attitude was inferred from often-heard statements to the effect that the new service would be helpful. Paradoxically, some of the physicians who praised the service most highly never referred a patient.

The cogent question—Why was the service not better utilized? When it became apparent that the service was not being employed to the extent that had been anticipated there was some speculation as to the wisdom of selecting an essentially urban community for the pilot study in the first place. It was argued that physicians in a more rural area would have less ancillary medical resources available to them and would, therefore, be more likely to welcome any new service that was offered them. However, this opinion was later altered, for while existence of other resources in the community might have been a factor it certainly was not the chief one.

The returned questionnaires indicated that 28 physicians checked "the availability of the service slipped my mind." Casual conversations with physicians pointed very strongly to this as the most important reason the service was not used more extensively. The impression gained was that some physicians checked the first item on the questionnaire, "I have had no patients who needed this type of service," either because it was the first and easiest reason to give or because they did not wish to offend by indicating that they had forgotten about it—although they would admit to it in conversation. It is highly

probable that no physician could practice general medicine for an entire year without having a single patient who needed additional, detailed, dietary instruction. The data derived from the questionnaire will not permit categorical conclusions; it can only be hypothesized that the physicians were not sufficiently conscious of the existence of the service to bear it in mind when they were confronted by a patient in need of more detailed counseling than they could give.

It is patent that at the time the service was first introduced the physicians were not impressed with its value to them, as one does not "forget" something which one presumes to be of value. Apparently the physicians were pleased with the service and yet did not remember it because they did not consider it of vital importance to the conduct of their practice. This may be better explained by the fact that they were not habituated to thinking in terms of the services of a nutritionist outside of a hospital as they were to those of a laboratory or public health nurse. Also, especially in the case of overweight, the physicians were inclined to doubt the amount of benefit the patient would derive as they believed he would not follow the diet for long anyway.

However, the primary reasons stemmed from a lack of awareness on the part of the physicians of the types of problems patients have and the kind of detailed help they need. This lack of awareness of their patients' needs cannot exactly be construed as a reflection upon the physicians. A study of the patients' comments—which were recorded verbatim—revealed that physicians frequently would explain the diets but not in the detail the patients would have liked. Without a doubt the physicians were satisfied that they had given adequate instruction—if one knows any subject thoroughly it is all too easy to overestimate the knowledge of another who is not well informed in that particular area.

Some patients frankly stated that they "hated to bother" the doctor with trivial questions. If the patient does not speak up and make his wants known in such instances, his questions will naturally go unanswered. Then, too, many of the patients' problems were regarding such nonmedical subjects as food alternates, meal planning, adjustments of recipes, where to buy, food costs, and interpretation of labels on packaged goods. It would never occur to most patients to bother a physician on such matters; yet here, again, they gave no indication to the physician that they desired such advice. Had they done so it is reasonable to assume the nutrition service would have been brought to the physician's mind.

It would appear that many patients, when first placed upon a prescribed diet, need detailed counseling which frequently includes areas with which most physicians could not be expected to be familiar. Physicians often are not aware that the patient is faced with these problems, which are on a highly individual basis, and patients are reluctant to mention these matters—perhaps because they feel a physician's office is not the proper place to discuss dietary habits, meal planning, and relative food costs. It should be noted, however, that there are indications that physicians in general are becoming more conscious of problems of this and like nature.

Summary and Conclusions

1. A pilot study is described which was conducted in Schenectady, N. Y., by the Public Health Service, in cooperation with the Bureau of Nutrition of the New York State Department of Health, in order to determine the extent physicians would use a nutrition

service if offered through a local health department.

2. Patients received dietary counseling from the nutritionist in her private office at the Health Department by appointment only when referred by the private physician. No fee was charged.

3. Data are presented which show that the service was not extensively utilized although it was highly probable that a need for it existed.

4. There appeared to be a lack of awareness on the part of the physicians of the kind of detailed help their patients needed. The contributing factors to this lack of awareness, which indicated that it could not entirely be construed as a reflection upon the physicians, are discussed.

A Critique of Community Health Services

What promises to be an important addition to the current literature of public health will be published as a supplement to the November Journal. Entitled "A Critique of Community Health Services" this will include the papers and discussions about the Birth—Care—and Growth of tax-supported community health services, given at the ninth annual meeting of the National Advisory Committee on Local Health Departments in Cincinnati last March.

In a foreword Reginald M. Atwater, M.D., will say, "This volume marks a milestone. A new ferment is freshly under way which contains great promise." An introduction, jointly by Clarissa E. Boyd and Sherwood Messner, respectively current and immediate past chairman of the National Advisory Committee, says, "In the present supplement is recorded a moment—perhaps a significant moment . . . in the continuing movement toward community public health services for all Americans."

The National Advisory Committee, now staffed and supported by the National Health Council, was, it will be remembered, organized as essentially a joint citizen-professional movement following the publication of Emerson's "Local Health Units for the Nation" and the Princeton Conference which brought together a variety of citizen interests. Both introduction and foreword recognize the direct line of descent from Emerson's plan for organizing a structure for delivering health services everywhere to the present concern with the quality of services in the framework of whatever structure is best suited to the individual community.

Continuous Recording of Fluoride in Water

FRANZ J. MAIER, B.S.M.E., B.S.C.E., F.A.P.H.A.; and
ERVIN BELLACK, B.S.Ch.E.

Describes the design and operation of two devices for recording total fluorides in water; one employing conductivity measurement of distillates; the other absorbency measurements.

A continuous record of the fluoride concentration in water provided by an automatic analyzer would be of value to water utilities. Such a record will not only monitor the operation of the fluoride-feeding system, it would also provide a graphic history of the fluoride concentration at any point in the plant or distribution system. The recording mechanism also can be used as the primary device for actuating the fluoride feeding mechanism.[1] In this way a constant fluoride level would be maintained automatically in the treated water regardless of variations in water consumption, fluoride level in the untreated water, and purity of the fluoride compounds.

Conductivity measurement is one of several possible principles that can be used in such a monitoring and recording system. This principle is employed now to measure the quantity of fluoride added to water.[2] In this installation at Salem-Beverly, Mass., two conductivity cells are used; one measures the conductivity of the water before fluoridation and the other after the addition of fluorides. The difference in conductivity is then expressed in terms of the added fluoride ion by a recording apparatus. This system cannot compensate for changes in fluoride in the untreated water and consequently cannot indicate the total fluoride in the treated water. The addition or the loss of conducting ions, other than fluorides, occurring between the two conductivity measuring points would also be measured as a change in the fluoride ion concentration. Consequently, in order to utilize this principle to measure total fluorides other ions contributing to conductivity must be removed.

The development of a device for the rapid distillation of water samples to give fluoride solutions essentially free of other ions provided an approach to our problem.[3] It was demonstrated that by regulating distillation conditions the fluoride concentration of the water sample and the distillate could be made the same. However, while the distillates from this device are free enough from interferences to allow direct chemical analysis for fluorides, they are far from satisfactory for determinations based on conductivity. Traces of sulfate ion (when sulfuric acid is used as the distillation acid) and ions resulting from volatile materials in the sample change the conductivity of the distillate to such a degree that the system is useless for fluoride measurements.

To adapt the device as a basis for continuous distillation it was necessary to determine how long the sulfuric acid could be used before its replacement was required. It was found that the only limiting factor was the total accumulation of solids in the acid bath after prolonged use. In time the bath became an almost solid mass.

The first step toward the development of a method for determining fluoride continuously by conductivity measurement evolved when a quantity of distillate from the device described was redistilled without the addition of acid. Portions of this second distillate were

analyzed chemically for fluoride * with parallel conductivity measurements made with a dip-type cell and conductivity bridge. A plot of these values revealed a direct relationship between conductivity values and fluoride concentrations.

It then became necessary to devise an apparatus which would provide such a second distillate continuously. This apparatus consisted of a Claisen flask equipped with a heater controlled by a thermoregulator connected through a mercury-plunger-type relay. The distillate from this flask was redistilled in a second flask of similar construction but without the thermoregulator. The entire double-distillation assembly, with the exception of the rubber tubing water inlet, was constructed of Pyrex glass with standard-taper, ground-glass joints. After the fluorides in the second flask had accumulated until the concentration had reached 25–30 mg/l, quantitative recovery of fluorides occurred, i.e., the fluoride concentration of the second distillate equalled that of the inlet water.

It was later observed that the fluorides in the second distillate fluctuated according to the volume of liquid in the second flask. The addition of a nonvolatile substance (glycerin) to raise the boiling point provided a means for level control by thermoregulation. However, the presence of any such substance in this flask prevented the quantitative distillation of fluorides. A sensitive level control was eventually attained by regulating the heater for this flask. Regulation was accomplished by connecting the heater through a system of relays to electrodes suspended in the flask.

The flask developed for this purpose, shown in Figure 1, is of round-bottom design, two inches in diameter and six inches high. The horizontal side tubes

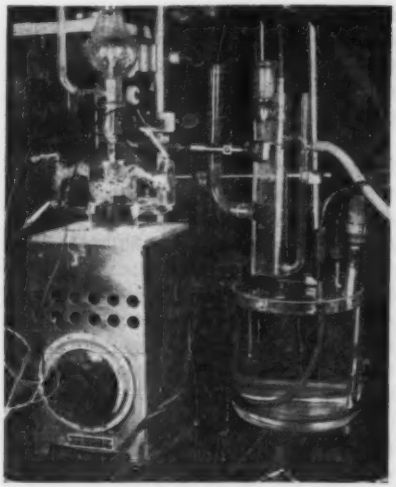

Figure 1—Second Still and Conductivity Cell

are set as low as possible while permitting the flask to be set into the heater opening. These side tubes are of capillary size in order to restrict the passage of bubbles into the leveling chambers and are long enough to extend beyond the edges of the heater. The vertical parts of the side tubes are about one-half inch in diameter, this being the minimum size to prevent premature contact between electrodes because of condensate flow. In one side arm the platinum wire electrodes are about one-fourth inch apart, the gap being placed as low in the flask as possible to restrict the quantity of liquid in the flask. (The smaller the volume, the faster the liquid will reach equilibrium after a

* These and all subsequent analyses were made using a Beckman Model B spectrophotometer and the ECR colorimetric reagent.[4]

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change in fluoride level.) In the other side arm a platinum wire extends down to a point at about the same level as the end of the lower wire in the opposite side arm.

Above the vertical tubes are connecting tubes leading back to the upper part of the flask. The size, location, and slant of these connecting tubes are such that boiling liquid will not be carried over from above and cause the liquid level to fluctuate. The 750 watt heater under the flask furnishes enough heat to insure that the second distillation will not lag behind flask A (Figure 4) which is equipped with a 550 watt heater.

The relay system for the second flask consists of two components as shown on a wiring diagram, Figure 2. A cold cathode-type relay, which operates on a current of 2 microamperes, triggers a relay which controls the heater. When a liquid contact exists across the gap formed by the two electrodes (A and B) in one of the side tubes, full voltage is transmitted to the heater and the distillation rate is increased. When this liquid contact is broken, the relay operates to send power to the heater through an adjustable voltage regulator. This has the effect of keeping the liquid level constant without undue cooling while the maximum heat is off. An adjustable time lag is incorporated in the relay to prevent hunting due to momentary make and break of the circuit through the liquid in the flask.

An additional circuit is utilized for a low-water cutoff and consists of the electrode in the other side tube (C), the

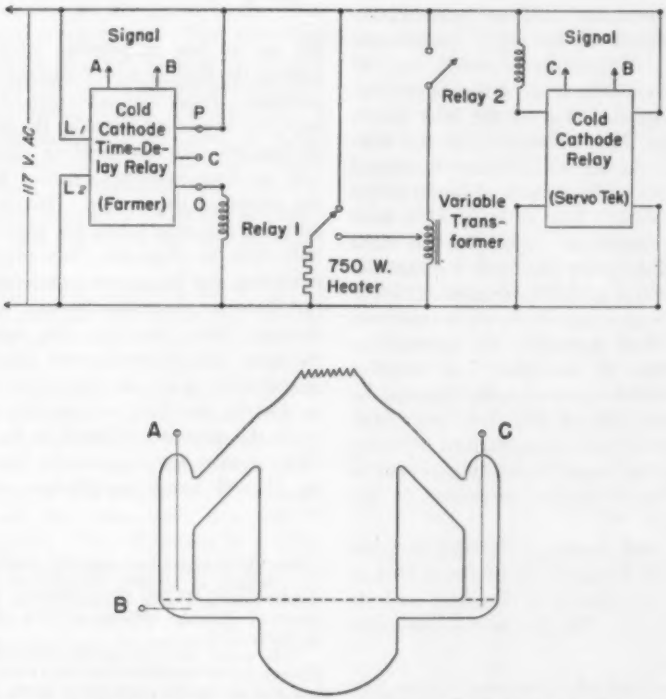

Figure 2—Relay System for Second Heater and Position of Electrodes in Second Flask

lower electrode in the first side tube (B), and another relay. When the liquid level falls below these contacts the relay opens to cut off the heater entirely. As the liquid level rises, the heater is turned on through the above steps.

When the unit is in operation condensate from the second still flows through a modified conductivity cell (Figure 1). This cell was adapted from a dip-type cell by removing the glass shield and enclosing the plates in a U-tube equipped with the necessary vents and outlet. The elongated design permits the cell to be immersed in a constant temperature bath. The longitudinal space adjacent to the electrodes permits the insertion of a sensing element for recording temperature or for operating a temperature compensator in the conductivity recorder.

The leads from the electrodes are connected to a conductivity recorder of the resistance type (Figure 3). In this device, manufactured by the Foxboro Company, the measuring circuit is a modified Wheatstone Bridge comprising two similar air capacitors and two resistors. The sensing element is one of the resistors, while the balancing element in the recorder is one of the capacitors. As the sensing element detects a change in conductivity, the measuring circuit becomes unbalanced and sets up a voltage which after amplification causes the pen drive to operate until the measuring circuit is rebalanced.

Of all the ions present in the usual water supplies, only those which distill over from a sulfuric acid bath are likely to contribute errors to the conductivity measurements. Of these, chloride and nitrate are the most prevalent. A small amount of chloride distills over into the

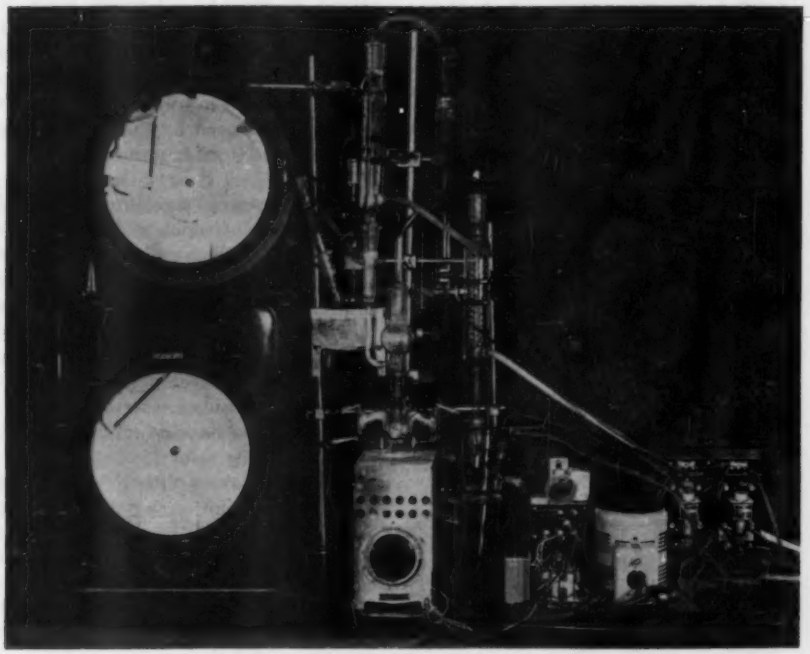

Figure 3—Fluoride Conductivity Assembly

second still even when solid silver sulfate is added to the first still. However, as much as 400 mg in 100 ml of solution may accumulate in the second still before any appears in the final distillate. The quantity of silver sulfate to be added to the first still depends on the amount of chlorides in the water, the amount of other dissolved solids (affecting the frequency of acid renewal), and the length of time the still is expected to run before the apparatus is shut down for cleaning and replacing the acid. No satisfactory method for removing nitrates has as yet been found, but nitrate also accumulates in the second still for some time before any appears in the distillate. The nitrate content of most waters is very low. Chlorine is destroyed in the first still; none has ever been found in the second. Quantitative recovery of fluoride was not prevented when water was used containing up to 2,000 mg/l sulfate, 500 mg/l alkalinity, 50 mg/l silica, and 50 mg/l aluminum. However, when aluminum exceeded 50 mg/l the boiling temperature had to be raised above 145° C for complete fluoride recovery.

To place the unit in operation flask A in Figure 4 is charged with approximately 100 ml of 1:1 sulfuric acid, 10 gm or more solid silver sulfate, and a few glass beads. Flask B is filled to the upper electrode with a dilute solution of fluosilicic acid in distilled water (about 20 mg/l F). Cooling water is started through the condensers and both heaters are turned on full. As soon as flask A comes up to temperature (thermoregulator is set to operate at about 140° C), evidenced by the relay operation, the water inlet is opened. When the contents of flask B begin boiling vigorously the power regulator is turned down to a point which will barely keep the solution boiling and both units are allowed to operate with their automatic controls. The recorder may then be turned on, and after sufficient water has been distilled to bring the system to equilibrium, the recorder will indicate the level of fluoride ion in the water.

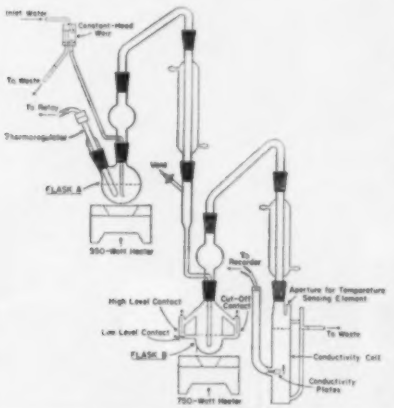

Figure 4—Distillation Apparatus

Table 1—Conductivity

(mmhos at 30° C)	Fluoride (mg/l)
16	0.77
17	0.83
18	0.88
19	0.93
20	0.97
21	1.00
22	1.05
23	1.08
24	1.12
25	1.15
26	1.19
27	1.22
28	1.25
29	1.28
30	1.30

Table 1 lists fluoride levels for various conductivity values.

Figure 5 shows a rather typical trace of a 24-hour run at a regulated temperature of 30° C. Figure 6 illustrates the response to changes in fluoride concentrations.

Since conductivity varies approximately 2 per cent per degree C, the temperature of the condensate becomes

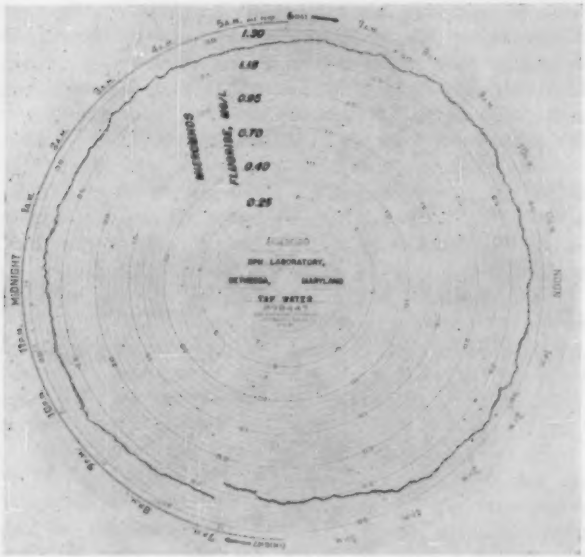

Figure 5—Recording Chart Including Typical Trace

a critical factor in determining fluoride by conductivity. If the recorder chart is to be interpreted properly, one of the following temperature compensations must be made:

1. Maintain temperature of water in the conductivity cell at a constant value and calibrate the chart accordingly.

2. Temperatures of the liquid in the cell can be read at intervals or recorded automatically in conjunction with the conductivity record. Fluoride can then be determined at any given point by use of curves applicable for various temperatures.

3. Equip recorder with automatic temperature compensation.

The latter is most satisfactory and, in this case, the recorder charts may be printed so that fluoride values may be substituted for conductivity units.

The apparatus may be allowed to operate continuously without attention, except for ink replenishment and daily chart changing, for as long as the accumulation of ions in the first still will permit. Failure to shut the still off in time will be apparent when readings begin drifting continually higher without evident cause. It would be well to limit the length of run to a definite period within a margin of safety. For water containing relatively small amounts of dissolved solids this may be as long as a month, with correspondingly shorter periods for other waters. At the end of the run both heaters are turned off; the inlet water is shut off; and both flasks replaced or cleaned and recharged. The unit is then started up as before.

Among the precautions to observe during the operation of the unit are the following:

1. All joints must be tight to prevent the loss of vapor containing fluoride. A light coating of silicone lubricant on the ground-glass joints prevents freezing and permits a tight seal.

2. Electric current must be on at all times. When the current is shut off flask A will continue to fill up without distilling and flask B will be emptied by the vacuum formed by

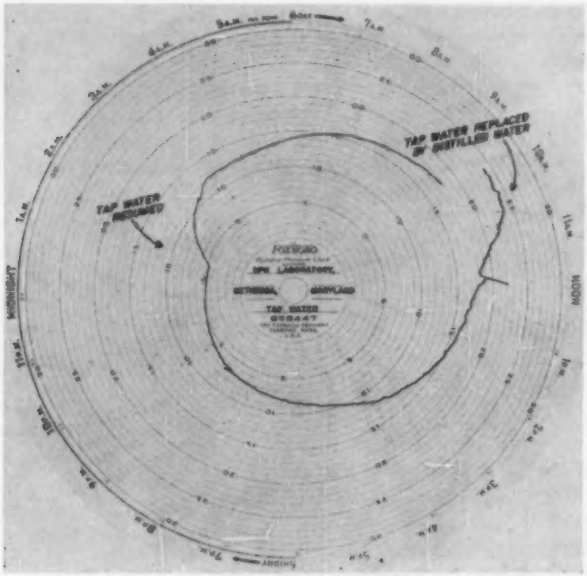

Figure 6—Recording Chart Showing Response to Fluoride Variations

cooling of the system. In the event of power failure the inlet water should be shut off immediately and the vacuum released by opening the stopcock below the first condenser. This can be done automatically with a solenoid actuated valve.

3. A continuous flow of water must be maintained. In the event of water failure power should be turned off immediately. This can be done automatically with a pressure switch on the water line.

4. The size and frequency of swing of the recorder pen (noise) is influenced primarily by the variation in liquid level in the second still. It may be reduced by judiciously increasing the power setting until the level remains close to the upper contact at all times. However, this setting should not be so high that the full power (power regulator bypassed) does not come on occasionally.

Absorbencies

The measurement of absorbencies is another principle utilized for the continuous recording of fluorides in water. With the development of an almost instantaneous colorimetric method for determining fluorides in water, the use of a color reagent and flow colorimeter became a possibility. Heretofore, all colorimetric methods of analysis required from five minutes to one hour, or more, for color development. This time lag made any truly continuous analysis practically impossible.

The ECR fluoride method produces a color which may be interpreted in terms of fluoride ion concentrations within seconds after the addition of reagents.[4] Its use permits the employment of a flow colorimeter to measure fluoride in a virtually constantly flowing stream of water. The design of the appropriate apparatus for achieving this end is based on continuously metering the water sample and two reagents, mixing the three ingredients, and passing the mixture through an absorption cell in a photometric device. The relative absorbence or transmission of light through the cell can then be relayed to

a recorder which plots these figures in terms of fluoride concentrations.

The ECR method is extremely sensitive to fluoride increments and to utilize its accuracy and precision requires precise proportioning of the sample and both reagents. First attempts with orifices calibrated to deliver the reagents in constant proportions and the water sample at a 10:1 ratio to each of them indicated that an orifice is at best a poor metering device for very low flow rates.

A truly continuous system had to be modified to that of an intermittent delivery of sample and reagents (Figure 7). Three automatic pipettes were set up so that at chosen periodic intervals 2.5 ml of each of the reagents and 25 ml of sample were discharged into a mixing chamber, the solution mixed for a predetermined time, and then released to flow through a colorimetric device. To make the device automatic the stopcocks on the automatic pipettes were driven by a timer-controlled electric motor and gear train so that all three pipettes would empty simultaneously. The solutions were held in the mixing chamber by a solenoid-operated pinch clamp. The solution then flowed through the cuvette of a photometer and thence to waste.

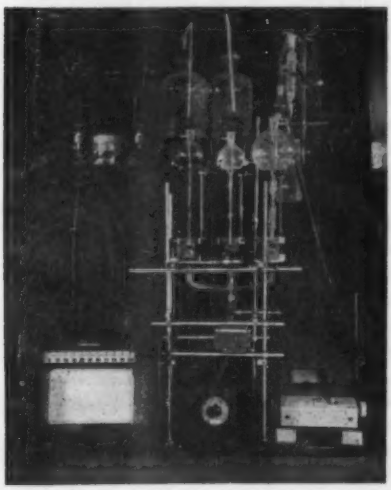

Figure 7—Absorption Assembly Including Single Distillation (Continuous) of Sample

The photometers used for this purpose should have a stable circuitry and a relative narrow band pass (maximum of about 20 mμ). We have not as yet found an instrument that is ideal in both these respects. A photometer could, however, be readily designed for this specific purpose and incorporated with the rest of the apparatus into a single instrument.

The recording of fluoride level derived from any colorimeter can be made with any potentiometric recorder. We used a Brown strip-chart recorder connected through a helipot (helical potentiometer) so that the output of any colorimeter can be correlated with the full-scale deflection of the recorder pen. The recorder chart was then calibrated in terms of fluoride concentrations and the continuous recording of fluoride ion was realized.

When using this reagent on waters containing ions which interfere with the fluoride measurement, the incoming water can be distilled automatically and continuously by a device described previously for conductivity measurements. Only one distillation is necessary, however, because of the tolerance of the ECR reagents to most interferences Figure 7).

The principles utilized have been shown to be practicable with the apparatus described. Many additional methods are available for producing distillates, for proportioning reagents and for measuring absorbencies. Our apparatus can probably become simplified, more sensitive, attractively housed, and designed, and constructed to operate with less attention. We hope that some of these

objectives will be accomplished at least in part in the near future.

The instrument section of the National Institutes of Health, Bethesda, Md., assisted us considerably in the development of the second distillation flask and of the circuitry required for controlling automatically the heater for this flask.

ACKNOWLEDGMENT—Grateful appreciation is expressed to Russell H. Babcock for the use of the Foxboro conductivity recorder and to John M. Jester of the Washington Suburban Sanitary Commission for permission to test our instruments at the Patuxent filtration plant.

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New Jersey's Division of Aging

The 1957 session of the New Jersey Legislature created a Division of Aging in the State Department, one of eight major divisions. The law provides for a State Commission on Aging appointed by the governor and confirmed by the Senate; five representing each of five different state departments; four for staggered terms of four years; and the director for a five-year term.

In addition, the New Jersey Citizens Council on Aging was created to act as a consultative body and to encourage the growth of local community councils on aging. Any citizen of New Jersey may belong to the Council. Its Board of Directors is appointed by the governor for staggered terms of three years each. Confirmation by the Senate is required.

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Prediction and Theory in Epidemiology

Where there is no vision the people perish. Proverbs XXIX. 18

The discovery by Robert Koch of the tubercle bacillus in 1882 was merely the end of the beginning in the struggle to control tuberculosis. Thereafter, it became possible to organize this endeavor in an increasingly systematic and effective manner. Since the turn of the century, mortality from tuberculosis has declined almost continuously in the United States. The annual incidence rate has likewise decreased, but less rapidly. Two sets of factors have interacted to produce these trends and the current situation to which they have led. These are general improvements in levels of living and advances in medical knowledge and technic. The addition of antibiotics and other potent drugs to the therapeutic armamentarium has undoubtedly accelerated the rate of decline in tuberculosis mortality, just as improvement in nutrition, housing, and other social correlates of economic position have affected host resistance.

As a consequence, tuberculosis, which was formerly a disease of adolescents and young adults, has now become predominantly a disease of middle-aged and older persons. Furthermore, it is especially prevalent among the economically underprivileged, among persons living in slums who are malnourished, and among those in contact with infectious cases. Final conquest of tuberculosis depends on effective programs of action and research oriented to these aspects of the current situation and directed toward the interruption of the many chains of person-to-person infection that propagate the disease.

This pattern of development provides the framework within which Wade H. Frost analyzed the tuberculosis situation in 1937 and speculated as to its future evolution. This is true as well of Feldman's provocative and thoughtful discussion of the problem in the current issue of the Journal. The implications of these "exercises in theory" for the problem of tuberculosis are clear, but implicit in them are a number of issues that transcend the particular disease and are of considerably wider theoretical and practical import. These relate to the character of epidemiology, to the role played by epidemiologic theory, and to the conditions and limits within which epidemiologic prediction is possible and useful.

Epidemiology is essentially a practical science whose objective is to make possible the prevention or control of disease by providing an understanding of the process by which it imposes itself on groups of people in time and space. Generally, the epidemiologist endeavors to achieve such an understanding by comparing disease incidence in contrasting population groups, and by relating the incidence as well as the distribution of disease in time and space to the apparently relevant characteristics of the people and their environment. These are the facts of epidemiology.

But as Frost pointed out: "Epidemiology at any given time is something more than the total of its established facts. It includes their orderly arrangement into chains of inference which extend more or less beyond the bounds of direct observation." As many of the aspects of disease movement in a population are not accessible to direct observation, the history of epidemiology is to a considerable extent the formation of inferences concerning the process by which disease attacks groups of people. Probably the most significant consequence of such "chains of inference" is the production of hypotheses and theories, tools that have highly important functions.

These functions were explicitly and succinctly stated by Aycock and Russell in 1943.[1] They are "(1) to arrive as near a conclusion as possible through preponderance of circumstantial evidence; but (2) perhaps more largely and equally important, to form a plan or pattern to give direction to subsequent studies or to carry a question which has been raised in the course of studies in one field of science across the boundary to other fields for further investigation." Briefly, a major function of an epidemiologic hypothesis or theory is to predict, broadly speaking, by pointing the finger of suspicion at a set of conditions or factors apparently related to the disease problem under scrutiny. Such predictions seldom reveal the whole truth in an all-illuminating flash, but they can and do tell us important and useful parts of the truth. No doubt the classic instance is Snow's recommendation to remove the handle of the Broad Street pump. In our time, we need hardly be less confident in advocating water fluoridation to reduce the incidence of dental caries, or in declaring heavy smoking to be dangerous to health.

Under what conditions then are the "chains of inference" most likely to yield valid and useful predictions? First of all, prediction is difficult when inferences are made in fields not yet well defined or explored. The validity of a theory and the conclusions drawn from it depend in part on the preponderance of the available evidence concerning the problem and in part on the state of development of other fields involved in the interpretations given to the known facts. This is strikingly evident in the epidemiology of mental disease, or of coronary artery disease. The obverse is equally evident. As the studies by Frost and Feldman clearly indicate, successful prediction is more likely when a large body of relevant knowledge and validated theory concerning a disease problem is available. In addition, however, the methodologic approach employed in these "exercises in theory" appears suitable for furthering knowledge in less advanced fields. Essentially, Frost assumed a closed system and in the light of the known facts analyzed the performance of this model through a given period of time. A laboratory parallel is the procedure of the experimental epidemiologist working with a mouse population. In either case, as far as possible, one endeavors to exclude uncontrolled, extraneous factors. Inferences may then be drawn for further testing. As a method for advancing knowledge, the analysis of theoretical models has proved fruitful in other fields—vide theoretical physics—and there would appear to be no a priori reason why this should not be equally true in epidemiology. Prior to the advent of bacteriology, the only tool available to the epidemiologist was the formation of theories derived from the available knowledge of disease distribution. It was the intelligent use of this tool which yielded such classics of inferential thought as Bretonneau's work on diphtheria and Panum's on measles. As the present interest in the epidemiology of noncommunicable diseases continues to expand there is need for the further develop-

[1] Aycock, W. L., and Russell, F. F. The Functions of Hypotheses in Epidemiology. Am. J. Med. Sc. 206:399–408, 1943.

ment of a theoretical epidemiology. The task for the future cannot be better put perhaps than in the words of John Milton: "Accuse not Nature! she hath done her part; do thou but thine."

Nursing in the Training of Public Health Workers

Public health nursing has long been recognized as a primary channel for the implementation of public health programs. The early visiting nurse and the Red Cross town and country nurse were often forerunners of more inclusive public health services. Their modern sister moves with equal aplomb to organize a polio vaccination clinic, to reassure the overanxious mother, to plan with a rural farm family for screening and ratproofing their home, or to develop priorities for the nursing care of families in home care programs. At planning and evaluation conferences her intimate knowledge of family and community problems, attitudes, and potentials provides information required to establish priorities and determine feasibility of public health programs and to interpret their consequences. Her skills in interviewing, counseling, and teaching help uncover approaches to motivation and education of the public and to the training of subsidiary workers; her basic professional preparation in team organization and team action lends support and sometimes direction to efforts involving the collaboration of several disciplines.

Because of the focal position of nursing in public health, it is essential that all workers being prepared for practice, for policy making, or for research and teaching in public health be able to recognize and to use effectively in their own sphere of activity the particular contribution of nursing. They need to know not only what is included in nursing services to families and communities, but also the ways in which the skills of nurses may be expected to contribute to the total health program and to the activities of other disciplines. For example, the special procedures developed by nurses for the training of nurses aide instructors might be equally useful in training interviewers in epidemiologic study. The administrator working on the problem of development of personnel and control of professional practice can gain much from the nurse's long acquaintance with and acceptance of professional supervision, time and cost studies and program evaluation. The engineer or sanitarian may profit from the nurse's work in teacher-nurse conferences and in using the rural school as a center for other family and community services. The psychiatrist's evaluation may be facilitated and perhaps modified by the observational skills of the nurse and her judgment of the impact of cultural and social pressures upon family behavior patterns. Similarly, the nurse must learn to appreciate and use the skills and the contributions of others on the public health team.

One of the best ways to promote such mutual understanding and joint effort is for students from the various disciplines to learn together. In solving problems cooperatively each learns the contribution of others and gains valuable experience in the process of working together. Schools of public health have grown up because public health has its own content—unique and different from the content of its component professional disciplines. In this field, opportunities for multidiscipline learning and application are greatest. For this reason, nurse students in schools of public health are a particular and potent factor in the education of public health workers from other professions. Direct collaborative experience enriches learning in a way that cannot be accomplished by any other means.

In a like manner, the nurse faculty member in schools of public health not only serves to bring the special content of nursing to students through organized courses and seminars, but more importantly she works with other faculty members to incorporate pertinent nursing content into other aspects of the curriculum. The nurse's objectives for family health improvement may influence ideas as to the kind of statistics that should be collected, just as her work in counseling and teaching can help mold the character of home care programs.

A liaison committee of the American Public Health Association and the National League for Nursing, organized in 1956 to consider long-range problems and programs of mutual concern, has as one of its important considerations the relationships between nursing and the education of public health workers. Through its subcommittee on education opportunity will be provided for mutual exploration of the many aspects of this important problem.

(The Journal is indebted to Ruth B. Freeman, Ed.D., associate professor of public health administration, School of Hygiene and Public Health, Johns Hopkins University, Baltimore, Md., for assistance in the preparation of this editorial.)

Soviet Medical and Public Health Literature in English

While the medical and public health literature of most of the countries of the world has been readily available to us, the inaccessibility of a considerable part of the Soviet literature in these fields left a wide and important gap in our knowledge. The significance of this situation was recognized almost a decade and a half ago by a far-sighted physician and historian, the late Henry E. Sigerist, when he became the editor of the "American Review of Soviet Medicine" in 1943. Unfortunately, the increasingly glacial climate of opinion during the ensuing years made it more and more difficult to carry on this pioneer endeavor, and it came to an end in 1948.

The initiative of the U. S. Department of Health, Education, and Welfare has now closed this gap in our knowledge. A grant from the National Institutes of Health to the Excerpta Medica Foundation has made it possible to publish a quarterly periodical, "Abstracts of Soviet Medicine," of which the first issue has just appeared. It comprises two parts: Part A (Basic Medical Sciences) includes a section on medical microbiology, immunology, and serology; Part B (Clinical Medicine) has a section on public health, social medicine and hygiene, and infectious diseases.

At the same time the Pergamon Institute of London and New York, on the initiative and with the support of the National Institutes of Health, is publishing an English edition of the "Soviet Journal of Microbiology, Epidemiology and Immunobiology." This Journal, now in its 28th year of publication, has a circulation in the USSR exceeding 11,000. It features original reports of work in the Soviet Union in the fields of the etiology, pathogenesis, epidemiology, immunology, diagnosis and prophylaxis of infectious diseases. Also included are general articles, bibliographies, reviews, and critical notices.

These publications represent a unique instance of international cooperation in making known the latest results of scientific endeavor. An extensive body of Soviet medical and public health literature will now be available in English, and cannot help but lead to a fruitful and creative interchange of knowledge and ideas on a truly global basis.

Credit Lines

The Journal cannot furnish copies of items mentioned in Credit Lines. Please send requests to the addresses given.

Health Forum in a School

A Health Forum was recently carried on in the Vallejo (Calif.) Adult School as a means of allaying fears and providing a sensible adjustment to health conditions. An advisory group made up of representatives of the local medical society, health department, and the local cancer, crippled children, polio, heart, tuberculosis, and mental health societies selected topics and assigned responsibility for developing the meeting on each subject. For example, the heart association obtained the speaker and arranged for audiovisual materials for the meetings devoted to questions about conditions of the heart.

The conclusion is that "a genuine service was rendered to the adults of the community. The participating agencies were pleased by the interest of those who attended."

Details of how the program was carried on may be obtained from Ernest F. Lundeen, Principal, Vallejo Adult School, 840 Nebraska St., Vallejo, Calif.

All About the Killing Diseases

What has been called the "book of the year" is a large and handsomely produced volume called "Facts on the Major Killing and Crippling Diseases in the United States." Here in a ring binder, excellent print and paper, charts and graphs, are the current facts about six major killing and crippling diseases—heart disease, cancer, mental illness, arthritis, blindness, and neurological diseases. The facts as to incidence, mortality, economic loss from the disease, specialists available, community facilities, expenditures for research, and the need for more research are here for all to read easily and graphically. National Health Education Committee, 135 East 42nd St., New York 17; $4.75.

Health Education Materials Sources

The Health Education Council of the Cincinnati Public Health Federation, in preparing a guide to sources of health education materials, has done a real service to all those who have need for such materials in the area—schools, health organizations, official agencies, PTAs, and many others. But it has also done a real service for the harried information persons in national health agencies who have to find an answer for anything from "Send me everything you have on public health" to "Are filter tips on cigarettes good or harmful?" This latter service is a by-product of listing the local cancer, cardiac, other voluntary groups rather than the national society. By this device also the local agency is made better known to its public.

The sources of health education services are listed separately for local, state, and national. Found in the national list are largely commercial or trade organizations that prepare health education materials as a part of their public service programs or other groups that do not have local chapters.

For the selected national sources, "How to Find What Health Education Materials You Are Looking For," prepared jointly by the National Publicity Council for Health and Welfare, the National Health Council, and the Amer-

ican Public Health Association, and reprinted from the American Journal of Public Health, served largely as the guide.

The Cincinnati group has done a service that might well be repeated elsewhere. 312 W. 9th St., Cincinnati 2, Ohio.

Glossary of Water and Sewage Terms

The April, 1957, issue of "Ingenieria Sanitaria," official publication of the Inter-American Association of Sanitary Engineering, is devoted to the presentation of two glossaries of terms used in water supply and sewage treatment. The first is an English-French glossary developed as a result of experiences gained in technical conferences in sanitary engineering held by the World Health Organization. During these conferences it became evident that one of the principal bars to fruitful discussions was an inability to exchange ideas.

The second is an English-Spanish-Portuguese glossary prepared by the Inter-American Association of Sanitary Engineering and presents sanitary engineering terms used in water treatment and sewage disposal. Ing. Clicerio Villafuerte, Editor, Alfonso Herrera 11–103, Mexico 4, D. F., Mexico.

Nonfluoridation Costs a Lot

All the road blocks that have been thrown in the way of fluoridation in New York City give special point to "Our Children's Teeth," a report of the Health Department's Bureau of Dentistry. Only a few pages, and mostly pictures, it starts with "The most widespread health problem among New York City's school children is tooth decay." Pictures of what the Health Department is doing to correct this problem with about as little success as Sisyphus had with his rolling stone. The finale is the clincher. In ten years of fluoridation the decay of 7,000,000 teeth and the extraction of 300,000 permanent teeth would have been prevented among the six-to-15-year age group. Fluoridation would have cost annually $700,000, but the treatment of these teeth would have cost more than ten times as much, $85,000,000. 125 Worth St., New York, N. Y.

Second Council Activities Report

For the second year the National Health Council has issued a report of some activities being carried on by local health councils. The present report covers 38 councils of which ten also reported for the previous year. The 38 councils were in 18 states. They reported a total of 89 different community projects in which they were involved. Of the 38 all but nine were served by a paid staff.

Admittedly this is a small sample of the some 500 or more local councils that have reported themselves active within the past year. Nevertheless the projects reported give a good many clues as to activities being carried on by counties in a sample of states from Vermont to California.

The report, together with an outline of how one study project was carried out in an urban council, is available from the National Health Council, 1790 Broadway, New York 19, N. Y.

Water and Sewage Best Books

"One-hundred Best Water and Sewage Books for Engineers, Chemists and Plant Operators" compiled by Harry A. Faber is based entirely upon the recommendations of engineers, chemists, and plant operators who use these books. It was compiled from the answers to a single question "Will you provide a list of those water and sewage books which you find most useful?" The 100 titles are classified by six main headings.

Water and Sewage Works. April, 1957. 155 E. 44th St., New York 17, N. Y.

Interpreting the Tuberculin Test

The National Tuberculosis Association and the American Trudeau Society deserve credit for their attractively produced brochure "Tuberculin Testing—Check Your Interpretation." This four-page leaflet in color illustrates six different reactions to the tuberculin test (Mantoux). An opportunity is given for the reader to reach a conclusion about the meaning of each test. The correct answers are given. The brochure also includes questions and their answers which should be meaningful to physicians, medical students, nurses, and all others concerned with this universally used test. Available from local tuberculosis associations or the National Tuberculosis Association, 1790 Broadway, New York 19, N. Y.

Stressing the Rewards

In a small three-color illustrated pamphlet, "The Modern and Better Way to Safeguard Your Health," the Health Insurance Plan of Greater New York points out the superiority of its own health insurance plan over commercial and other plans. The most important of these is the emphasis on preventive services and the completeness of the medical care provided both in terms of the battery of specialists available to the insured and coverage of total expenses.

This is an excellent example of getting a message across briefly and conversationally. 625 Madison Ave., New York 22, N. Y.

Worth Acquiring

References on Aging for Health Personnel is a 15-page annotated bibliography and a four-page selected list of books and pamphlets prepared by nursing and nutrition consultants of the Chronic Disease Program of the Public Health Service. The bibliography is classified by eight main subjects—the problem; employment, retirement, and income; living arrangements; physical health (which takes up the lion's share); mental health; institutional facilities and care; leisure time; and community responsibilities and planning.

Single copies or limited quantities available from Chronic Disease Program, Division of Special Health Services, Public Health Service, Washington 25, D. C.

"Water Fluoridation: Facts, Not Myths" is the Public Affairs Committee's contribution to the growing chorus of demand for fluoridation as a means to dental health. The pamphlet is written by Louis I. Dublin, Ph.D., consultant to the Institute of Life Insurance, who says that opposition to fluoridation "will disappear like a bad dream once citizens make it their business to learn the facts."

Here in an easy style is presented a summary of the scientific and of opposition arguments, which are without scientific proof. Benjamin Spock, M.D., contributes a foreword in which he says, "As a pediatrician interested in preventing ill health I am enthusiastically in favor of fluoridation." If only those who see bogey men under every bed would react to reasoned argument!

Public Affairs Pamphlet No. 251. Public Affairs Committee, 22 E. 38th St., New York 16; 25 cents, reductions on quantity orders.

"High Blood Pressure" is for the person with hypertension and the members of his family. It explains what hypertension is, what the doctor can do about it, and what the patient can—

perhaps must—do to "look forward to years of comfortable and productive living." This is valuable aid to help keep on an even keel both the person who takes his hypertension too seriously and the one who takes it too lightly. From local heart associations or the American Heart Association, 44 E. 23rd St., New York 10, N. Y.

"Your Child's Health Is Everybody's Business" and "Your Child's Health at School" illustrate local interagency cooperation in doing a job. Written to remind parents of elementary and high school students in Montgomery County, Md., of their responsibilities in the healthy growth of their children, the leaflets are joint products of the County Council of PTAs, the Health Department, Board of Education, and the County Tuberculosis Association.

The title of the first one has caused some eyebrow lifting by parents, but it is probably safe to say the eyebrow lifting has led to perusal of the eight pages.

The pamphlets were provided Credit Lines by the county health officer, William J. Peeples, M.D., Rockville, Md.

Annual Report

Communicable Disease Center, Report of Activities 1954–1955, announces itself as "an effort to bring into common focus the accomplishments of the several organizational components." The branches of the Center are Epidemiology, Training, Laboratory, Technology, and Administrative; the chief fields of operation are Epidemic and Disaster Aid, Field and Laboratory Investigations, the story of which comprises nearly 60 per cent of the report, Special Operational Services, and Training. There is a 12-page bibliography.

This report is in effect a compendium of what goes on currently in communicable disease—new diseases, new infecting factors, testing of new weapons of control, the service of the Center to state and local health departments to mention but a few. Public Health Service Publication No. 521, Communicable Disease Center, Atlanta, Ga.

Books and Reports

All reviews are prepared on invitation. Unsolicited reviews cannot be accepted.

Blindness in Children—By Miriam Norris; Patricia J. Spaulding; and Fern H. Brodie. Chicago, Ill.: University of Chicago Press (5750 Ellis Ave.), 1957. 173 pp. Price $3.00.

Early in the history of retrolental fibroplasia the blinding eye disease of prematures who receive excessive oxygen, it was believed by some that the condition was part of an encephalopathy because these children often appeared mentally defective.

An intensive five-year study at the University of Chicago clinics of 66 blind preschool children, together with observations of 239 others, is ably reported here. Eighty-five per cent of the 66 children were blind from RLF. In all cases the diagnosis of blindness was made before the child's first birthday, and in two-thirds before six months. One-fifth of the children were born of multiple births; all of these were premature. Eighteen per cent of the families had one child; 17 per cent, four or more. Socioeconomic status was very high for 5 per cent, high for 24 per cent, moderate for 38 per cent, low for 21 per cent, and very low for 12 per cent.

Psychologists administered 2,500 tests during the project, using adaptations of the Cattell Infant Intelligence Scale and the Kuhlmann Tests of Mental Development, the Interim Hayes-Binet Intelligence Scale for the Blind, and a rearrangement of the Maxfield-Fjeld Scale to measure social maturity. Skilled social workers arranged for the help of various community resources as needed and helped in assessing such factors as the child's environment and his responses to it, family and other interrelationships as affected by blindness, social development, and opportunities for learning (believed essential to meet the stimulus need).

When the project staff found children who needed the kind of opportunities for development provided by a nursery school, it was decided to place them in a carefully selected regular neighborhood nursery school rather than to have one solely for blind children. Most children in the project were so placed and generally were able to profit tremendously by such experience. At the same time, having a blind child in the group proved to have advantages for both children and staff in the regular nursery school.

No evidence was found that RLF is associated with a brain defect. It was concluded that when a child with RLF appears to be mentally retarded and there are no specific neurologic findings, the retardation is probably related to social and environmental factors. It was felt that there are no special problems or "handicaps" which can be directly attributed to blindness, and that the freedom to use all his sensory modalities constructively and without restraint are basic to a blind child's optimum development, especially during the earliest months and years. Those who have felt that the problems of the blind are chiefly those projected on them by their sighted "friends" and families will find much to strengthen this conviction in the six interesting case histories that are presented in this volume.

FRANKLIN M. FOOTE

Air Pollution Handbook—Edited by Paul L. Magill; Francis R. Holden; and Charles Ackley. New York: McGraw-Hill Book Company (330 West 42nd St.), 1956. Fourteen sections plus table of conversion factors and index. Price, $15.00.

The problem of air pollution is receiving wider and wider recognition as a factor in our industrial civilization and urban life.

There are not many books in this field which deal with the problem in its broadest aspects. The present volume is, in the opinion of the reviewer, the first attempt designed to cover this subject in a broad and intensive manner.

This volume has been prepared by 31 contributors, all of whom are high ranking men in their respective fields. The book is divided into 14 sections, ranging from sources of air pollution and their control, the chemistry of contaminated atmospheres, physics of the atmosphere, evaluation of weather effects, the epidemiology of air pollution, the effects of air pollution on animals and plants, and analytical methods and equipment and processes for abating air pollution. The final section deals with the subject of legislation.

In the opinion of the reviewer the only omission of importance might be considered the lack of a presentation of the technics by means of which the official agency achieves its objectives. The reviewer feels that this might be considered important because new control agencies are springing into being at a rapid rate and control officials lack a source book of information on the administrative technics employed successfully by such agencies.

The volume is well printed with many diagrams, charts, tables, and references. Without question, this volume will be considered a standard reference book for many years in the field of air pollution and its control.

LEONARD GREENBURG

Group Work and Community Organization, 1956—Papers Presented at the 83rd Annual Forum of the National Conference of Social Work. New York: Columbia University Press (2960 Broadway), 1956. 108 pp. Price, $2.50.

This book, a reproduction of nine outstanding papers, covers a wide range of concerns and developments in both social group work and community organization. Those working with community groups—from youth to the aged, in rural and urban areas, with the normal and handicapped—will find new approaches and solutions suggested in this volume.

The first paper sets the stage for application of community organization in a variety of group situations in its basic concepts: the dynamics of individual, group, and community behavior; the process of problem solving; the role and behavior of the community organization worker. Does the worker understand his community and his varying roles in it? How does his role change from that of resource person, to research worker, to participant in helping groups of people to work out their problems?

Among the many questions discussed in the book which will be of interest to a great variety of readers are the following:

How can delinquency in teen-age children be curtailed when the existing value systems in a community are unobtainable and unrealistic to meet the needs of the vast majority of this age group?

How does the organization, structure, and staffing of a community group work agency relate to its success in attracting and meeting the desires of young people to use its services?

What group opportunities are available to rural youth through Extension Service with its 4-H clubs in helping them to enrich life?

How can we turn group resources,

such as the services of volunteers, into constructive ends—over and beyond "do goodism"?

What is the rationale for group psychotherapy—an experience in a school for boys requiring psychiatric treatment?

How can the social group worker help the handicapped child relate to others in a satisfying way?

How does the "Day Center for the Aged" fill the void of loneliness apparent in many of our aged population?

CLARISSA E. BOYD

Recommended Practice for Design, Equipment and Operation of Swimming Pools and Other Public Bathing Places (10th ed.). The American Public Health Association and the Conference of State Sanitary Engineers. New York: The Association (1790 Broadway), 1957. 60 pp. Price, $1.00.

Many minor changes have been made in the report bringing it up to date. Statements concerning the following have been added to the report:

Relationship of illness to swimming pools
Family style fill-and-draw pools
"Water-level deck type" swimming pools
Surface skimmers
Diatomaceous earth filters
Further statements on bacteriological standards for outdoor bathing places and the inclusion of an appendix, "Proposed Electrical Safety Requirements for Public Bathing Places"

Standards for water chlorination have been changed to give an upward limit of 1.0 ppm residual for chlorine in the normal chlorination procedure. A new section is added covering "High-free residual chlorine." Recognition is given to a practice started in England wherein residuals of 1 ppm and higher are maintained in waters having an alkalinity of pH 8.0 to 8.9.

As in previous editions, this report is an official statement of both the American Public Health Association and the Conference of State Sanitary Engineers.

FRANCIS B. ELDER

The Early Detection and Prevention of Disease—Edited by John P. Hubbard. New York: McGraw-Hill (330 W. 42nd St.), 1957. 350 pp. Price, $7.50.

We are told that Sir William Osler is the first one who said "Preventive medicine is the medicine of the future." Much has been said along this line, especially by those of us in public health, but we are still far from this promised land in everyday clinical medicine. This book, perhaps for the first time, shows the clinician in the role of a "preventive medicine man." It is a collection of much that was said on the early detection and prevention of disease by a group of distinguished clinicians at a five-day symposium arranged and directed by the Department of Public Health and Preventive Medicine of the University of Pennsylvania School of Medicine in cooperation with the American College of Physicians. Some of the authors have done admirably in presenting the possibilities for early detection and prevention of disease: for example, pelvic (Clayton T. Beecham) and lung cancer (Katharine R. Boucot). There are also brief but meaty papers on the emotional growth and development of the child and the adolescent, the former by Milton Senn and the latter by Benjamin H. Balser. Lemuel C. McGee states very well the case for the clinical practice of preventive medicine and this should be read by every physician. Possibly the book's most important value is as a demonstration that clinicians can and do think of specific diseases from the point of view of their prevention as well as diagnosis and treatment.

This is a book to be read with profit by public health officials who seek support for programs of early detection of

disease or development of occupational health service. It will give the medical student as well as the student of public health orientation in the early detection and prevention of many diseases. Here is a book which supplies content in support of the philosophy of preventive medicine. This book helps give the internist an orientation toward the patient more like that of the pediatrician.

GEORGE M. WHEATLEY

Personality, Stress and Tuberculosis—Edited by Phineas J. Sparer. New York: International Universities Press (227 West 13th St.), 1956. 629 pp. Price, $12.50.

This book consists of 34 discussions by a scholarly group of research workers, psychologists, and physicians. It is edited by a distinguished psychiatrist.

The editor states that he "made no attempt to unify the various views and approaches, deeming such unification premature." Thus, while there are no serious basic disagreements among the various contributors, there is a fascinating variety of approaches to the subject matter.

The first section of the book is devoted to discussions on the effect of emotional disturbances, both on tuberculous disease per se and on the personality of the tuberculous patient. All authors agree that such disturbances tend to be harmful. However, there is a great variation in the opinions of the different authors as to the degree of harmful effect. Many phthisiologists may have some doubt that there is a direct deleterious effect on tuberculosis due to hormonal reactions evoked by emotional disturbances as is implied by some of the authors. Most tuberculosis clinicians will agree that faulty diet, inadequate rest, and lack of attention to other general hygienic measures often seen in disturbed patients adversely affect the course of tuberculosis.

The next two sections consider specific problems of tuberculous patients and institutions caring for them. The last offers a suggested program for care of tuberculous patients who are emotionally disturbed or psychotic.

This book is a series of philosophical discussions, reports on research, clinical observations, and interesting case histories, with a background of much good common sense and a little nonsense. The jargon of the psychiatrist in a few spots will be difficult for the uninitiated, but for the most part the papers are quite enjoyable and profitable reading. This series of discussions is recommended reading for professional personnel caring for the tuberculous. Chapter 14, "The Patient Looks at Tuberculosis," is worthy of special mention.

J. B. STOCKLEN

Your Health and Safety—By J. W. Clemensen; T. G. Lawrence; H. S. Hoyman; and W. R. LaPorte (4th ed.). New York: Harcourt Brace (383 Madison Ave.), 1957. 576 pp. Price, $4.08.

This represents a completely revised and rewritten fourth edition of a high school textbook presented throughout with a two-color format with excellent text and illustrations.

The authors' aim is a direct motivation of good health practices. The writing is clear. Materials are well chosen and the whole treatment is provocative.

The titles of the eight units into which the text is divided reflect the methods: You; Your Supply System; Your Food; Your Appearance; Your Habits and Personality; Your Emotions and Personality; Your Part in Preventing Disease; Your Part in Preventing Accidents. There is a good glossary and an index. Each chapter is followed by summaries of what you have learned, what you can do, things to try, and the more you can learn.

This reviewer wishes that his high school days had been blessed with such a volume. He is sending gift copies to his adolescent grandchildren.

REGINALD M. ATWATER

Prolonged Illness — Absenteeism: Summary Report—By the Research Council for Economic Security. Chicago, Ill.: Harshe-Rotman (8 S. Dearborn St.), 1957. 237 pp. Price, $10.00.

The book contains tabulations and analyses of data obtained from 145 private establishments in nonfarm industry on a questionnaire basis. They include approximately a year's reports on long-time illness absenteeism (over four weeks) among 193,856 workers, or it may be this number of person-years: the number seems to apply to either indiscriminately (Tables 2 and 3, for example), although the usual basis for rates is the latter.

The data are broken down into many categories, by subgroups of population, types of industry, nature and duration of disease, and cost and method of financing medical care. The sample appears to be well selected and the data should prove valuable as source material in many ways.

A good deal of tabulation is expressed in terms of percentages, which makes for easier absorption and comparison. Nowhere, on the other hand, is there a measure (or even a mention) of precision of a rate. Occasionally, discussions are based on rate differences which, in view of the sizes of the subgroups involved, can hardly be accepted as significant.

The basic data should be of great value to workers in the field of medical economics. The statistical presentation is occasionally naive, to say the least: for instance, the graphs of Figures 11 and 12 might have been lifted bodily from Darrell Huff's "How to Lie with Statistics."

HUGO MUENCH

Dental Health Education — By Frances A. Stoll. Philadelphia, Pa.: Lea and Febiger (Washington Square), 1957. 196 pp. Price, $4.50.

Galagan has advised that "What is needed is a generation of adults, parents, teachers, and public health workers who will assume responsibility for seeing that the necessary preventive, educational, and corrective services are available to the children until they reach an age where they can make their own decisions about the relative value of good dental health."

Stoll, in this volume, offers public health workers informative material to help them assume the responsibility for measures designed to improve dental conditions.

What makes the text particularly useful is the fact that the author first presents material on foundations for and significance of dental health, as well as educational concepts. She also furnishes the reader with realistic and practical suggestions for conducting dental health education programs.

Planning and establishing dental health programs in schools are covered in well prepared chapters. Dental treatment for all children, methods in dental health education, and adult education for dental health are topics that are well documented and clearly explained in other chapters.

All in all, public health education personnel will be in a better position to achieve dental objectives after studying the contents of this readable and authoritative book.

J. M. WISAN

Expectant Motherhood—By Nicholson J. Eastman. Boston, Mass.: Little, Brown (34 Beacon St.), 1957. 194 pp. Price, $1.75.

Probably no other book on pregnancy has been read so extensively by people interested in babies as this one. The publication of the third edition will be

as popular as its two predecessors with expectants and their doctors. It continues as perhaps the best textbook for expectant mothers.

The format remains the same. Chapter titles and pictures are as before. Those familiar with its predecessors will note modification in chapter three about travel instructions. Chapter eight no longer tells of home delivery. Demerol and trilene are added; spinal anesthesia is mentioned.

No one reading the pages on "Natural Childbirth" will think of it either as being painless, or without benefit of anesthesia, a much needed clarification. Dr. Eastman states that natural childbirth consists of: (1) confidence in the doctor, (2) knowledge of pregnancy and labor processes, and (3) relaxation—letting loose. "It is stated that these are all of the advantages of natural childbirth and you need not bother further about it. Actually all good doctors have practiced its main tenets for years."

In principle, the reviewer does not disagree, but believes this is an oversimplification of the facts. Patients who have had the advantage, real training in relaxation and breathing classes, and doctors who have encouraged their patients to take such classes, will give it more credit. The acknowledged advantages of psychologic support in labor by nurses, husbands, and physicians might well have been cited.

In former editions it might have been understandable that no mention was made of expectant parent classes or relaxation classes. With the quality of such teaching in all parts of the United States today by physicians, as well as by organizations, this omission seems rather strange. Chapter 10 has two restrained paragraphs about rooming-in.

One could wish that chapter seven had received more revision; wool mixture for shirts, petticoats, "daisy cloth," long bootees, quilted pads are long-gone items in stores selling layettes. Some of the baby care suggestions are likewise passé.

All in all, however, this is still the same common-sense book it has been. It is written clearly. It has, and it will endear itself to mothers and doctors.

DAVID B. TREAT

The Adoption of Inoculation for Smallpox in England and France —By Genevieve Miller. Philadelphia, Pa.: University of Pennsylvania Press, 1957. 355 pp. Price, $6.00.

Edward Jenner's announcement in 1798 of vaccination against smallpox is a landmark in the history of preventive medicine and public health. Vaccination, however, did not arise ex nihilo. It was actually the refinement of an earlier preventive procedure. This was smallpox inoculation, or variolation, which had been introduced into Europe almost eighty years earlier. It is this precursor of vaccination that Miss Miller has subjected to detailed study. This analysis brings into relief the significant factors that led Englishmen and Frenchmen, as well as others, to accept smallpox inoculation—that is, the purposeful contraction of a disease in order to secure protection from it. This book illustrates a process of successful innovation in society and will be of interest to health workers who are concerned with the introduction of new protective measures, as for instance immunization against poliomyelitis or the fluoridation of water supplies.

GEORGE ROSEN

Books Received

Listing in this column acknowledges the receipt of books and our appreciation to the senders. Space and the interests of readers will permit review of some, but not all, of the books listed.

ANNUAL EPIDEMIOLOGICAL AND VITAL STATISTICS 1954 (Bilingual edition—French and English). World Health Organization. New York: Columbia University Press, 1957. 617 pp. Price, $10.00.

BEGINNINGS OF EMBRYONIC DEVELOPMENT, THE. Edited by Albert Tyler; R.C. von Borstel; and Charles B. Metz. Washington, D. C.: American Association for the Advancement of Science, 1957. 408 pp. Price, $8.75; $7.50 to AAAS Members.

BIOLOGY OF THE TREPONEMATOSES. Thomas Bourne Turner and David H. Hollander. WHO Publication Monograph Series No. 35. New York: Columbia University Press. 278 pp. Price, $6.00.

BOOK OF CONTEMPLATION, A. Dagobert D. Runes. New York: Philosophical Library, 1957. 149 pp. Price, $3.00.

DAIRY BACTERIOLOGY. Bernard W. Hammer and Frederick J. Babel (4th ed.). New York: Wiley, 1957. 614 pp. Price, $9.00.

DENVER AREA AIR POLLUTION PROBLEM. Prepared at the Request of Local Governmental Agencies. Cincinnati, Ohio: Community Air Pollution Program, Robert A. Taft Sanitary Engineering Center, 1957. 78 pp. Free.

GUIDE ON PERSONNEL POLICIES FOR EMPLOYERS OF PUBLIC HEALTH NURSES. Department of Public Health Nursing. New York: National League for Nursing, 1957. 72 pp. Price, $1.50.

INTRODUCTION TO STATISTICAL REASONING. Philip J. McCarthy. New York: McGraw-Hill, 1957. 402 pp. Price, $5.75.

IT PAYS TO BE HEALTHY. Robert Collier Page. New York: Prentice-Hall, 1957. 285 pp. Price, $4.95.

HEALTH CARE IN PEOPLE'S POLAND. Dr. Marcin Kacprzak and Dr. Boguslaw Kozusznik. Warsaw, Poland: Polonia Publishing House, 1957. 106 pp.

HEALTH SURVEY OF SEVENTEEN MUNICIPALITIES SERVED BY THE BAYAMON DISTRICT HOSPITAL OF PUERTO RICO. San Juan, Puerto Rico: University of Puerto Rico, Department of Preventive Medicine, 1957. 298 pp.

LIFE, DEATH AND DISEASE IN SWEDEN. Erik Ask-Upmark. Stockholm, Sweden: Almqvist and Wiksell, 1957. 56 pp. Price, Sw.kr. 4:75.

MEDICAL RADIATION BIOLOGY. Friedrich Ellinger. Springfield, Ill.: Thomas, 1957. 945 pp. Price, $20.00.

MODERN PERINATAL CARE. Leslie V. Dill. New York: Appleton-Century-Crofts, 1957. Price, $6.50.

PREMATURE BABY, THE. V. Mary Crosse (4th ed.). Boston, Mass.: Little, Brown, 1957. 242 pp. Price, $5.00.

REBUILDING HUMAN LIVES: THE REHABILITATION OF THE HANDICAPPED. Part One—Trained Rehabilitation Workers: How Much Are They Paid? New York: Seventh Company, 1957. 64 pp.

REMOTIVATING THE MENTAL PATIENT. Otto von Mering and Stanley H. King. New York: Russell Sage Foundation, 1957. 216 pp. Price, $3.00.

REPORT OF NEW YORK STATE JOINT LEGISLATIVE COMMITTEE ON MENTAL RETARDATION 1957. Albany, N. Y.: The Committee, 1957. 67 pp.

RHEUMATOID ARTHRITIS. Charles L. Short; Walter Bauer; and William E. Reynolds. Cambridge, Mass.: Harvard University Press for the Commonwealth Fund, 1957. 480 pp. Price, $7.00.

SANITARIAN'S HANDBOOK: THEORY AND ADMINISTRATIVE PRACTICE. Ben Freedman. New Orleans, La.: Peerless Publishing, 1957. 1083 pp. Price, $14.75.

SOME ASPECTS OF THE NATIONAL HEALTH SITUATION. Bleecker Marquette. September, 1956 (revised, June, 1957). New York: United Community Funds and Councils of America, 1957. 65 pp. Limited distribution.

TEACHING OF HYGIENE AND PUBLIC HEALTH IN EUROPE. F. Grundy and J. M. Mackintosh. WHO Publication Monograph Series No. 34. New York: Columbia University Press, 1957. 254 pp. Price, $5.00.

TEN MILLION AND ONE—NEUROLOGICAL DISABILITY AS A NATIONAL PROBLEM. An Arden House Conference Sponsored by the National Health Council. New York: Hoeber-Harper, 1957. 102 pp. Price, $3.50.

TEXTBOOK OF MEAT INSPECTION. Horace Thornton (3rd ed.). Baltimore, Md.: Williams and Wilkins, 1957. 592 pp. Price, $12.50.

VOLUNTARY HEALTH INSURANCE IN TWO CITIES. Odin W. Anderson. New York: Health Information Foundation, 1957. 145 pp. Price, $5.00.

WORD TO PARENTS ABOUT MENTAL HYGIENE. A. Leo Kanner. Madison, Wis.: University of Wisconsin Press, 1957. 86 pp. Price, $1.00 paper; $3.00 cloth.

A Selected Public Health Bibliography with Annotations

Something New—Novelty at least should make the story of interest to you. It is about a health-department-approved mobile catered food service that goes about providing a variety of hot luncheon dishes for employees of small plants lacking adequate feeding facilities.

ANON. Hot Foods on Wheels. Modern San. 9, 6:19 (June), 1957.

Housewife's Delight—A study of frozen foods by a Committee of the International Association of Milk and Food Sanitarians reveals many potential health hazards in this rapidly growing industry. The finding leads to the recommendation of continuing and extended studies of the sanitary quality of this ever-present help to the harried housewife.

ANON. "Heat and Eat" Frozen Foods. Modern San. 9, 7:17 (July), 1957.

Native vs. Trained Talents—There are an estimated 17,000 professional positions in state and local health services and 9,000 of the people who fill them have not had the requisite professional preparation. A survey of what has been done, and will soon be done, to remedy this serious lack of training is reported upon.

ANDERSON, O. L. Training Opportunities for Pulic Health Personnel. Pub. Health Rep. 72, 8:681 (Aug.), 1957.

Rib Roasts and Drum Sticks—More and more beef cattle and poultry are being given estrogens to improve fattening and feeding efficiency. Do residual amounts of estrogens remain in the meat? Is there danger in the consumption of such meat? Are there other possible hazards? Trace amounts of estrogens can certainly be found. Are they safe? So far as we know they seem to be harmless, but certain other hazards may exist and these you will have to read the whole report to learn about.

BRIGGS, G. M. Estrogen Residue in Meat—Public Health Aspects. J.A.M.A. 164, 13:1473 (June 27), 1957.

Battle Cries—How would this do for a slogan for your coming water-fluoridation battle? "Fluoridation will prevent, for ten cents, as much tooth decay as it would cost five dollars to have treated—if there were dentists available to treat it!" Or this: "The average cost of one filling will fluoridate water for one individual for about fifty years."

BROWN, H. K. Where Are We Going with Dental Health Programs? Canad. J. Pub. Health 48, 7:281 (July), 1957.

The Will's and the Won't's—Is your agency considering a community illness canvass? You will want to know about this study of the differences between those who responded to an invitation to be examined and those who did not. Recommendations based on this experience are made for the benefit of future canvasses. The most important is that an attack on the nonresponse problem be built into each plan of investigation.

COBB, S., et al. Differences Between Respondents and Nonrespondents in a Morbidity Survey Involving Clinical Examination. J. Chronic Dis. 6, 2:95 (Aug.), 1957.

Working Mothers—The authors present suggestive findings of certain

deleterious influences on family life and children when mothers work outside the home. The problem calls for discussions by groups of parents and health and social workers. A mass program of financial subsidy to keep necessitous mothers at home would not fill the bill: individual guidance is called for. Here is a matter of keen interest to all of us.

GLUECK S., and GLUECK, E. Working Mothers and Delinquency. Ment. Hyg. 41, 3:327 (July), 1957.

Tragedy Turned to Good Use—Near Teheran a rabid wolf bit 29 people (18 on face or neck). Some of the severely bitten were given two doses of antiserum in addition to the 21 daily doses of vaccine; some received one dose of antiserum; and others had only the usual daily vaccine. To learn the comparable results you will have to read the paper, which has much more in it—about experimental and field studies.

HABEL, K. Rabies Prophylaxis in Man. Pub. Health Rep. 72, 8:667 (Aug.), 1957.

Common Task—An address at the inaugural meeting of the mental health group of the (Br.) Society of M.O.H., reminds us that our recent pioneering venture in the same field finds an aggressive counterpart over there. The health officer speaker ends his philosophic address: "A community of ignorance in a community of interest ought to produce a community of humility in approach"—a conclusion which may create a faint echo over here.

KERSHAW, J. D. The Pursuit of the Whole. Pub. Health 71, 4:135 (July), 1957.

Birds in Winter—It is agreed that birds serve as the source of infection for both Eastern and Western equine encephalitis. How the reservoir of these viruses survives the winter remains to be demonstrated. Do migrations to warmer climes keep the viruses "in circulation"? Might Western encephalitis invade the East? Some light is thrown on both questions by two papers.

KISSLING, R. E., et al. Birds as Winter Hosts for Eastern and Western Equine Encephalomyelitis Viruses. Am. J. Hyg. 66, 1:42 (July), 1957.

Accident Prevention — Convincingly argued here is the thesis that accidental trauma is a major problem in public health. Since human factors play a predominant role, the health officer has a responsibility in preventing accidents. There is urgent need for controlled experimental, statistical, and clinical studies and epidemiologic surveys to conserve the lives and limbs of our people.

MCFARLAND, R. A. The Role of Human Factors in Accidental Trauma. Am. J. M. Sc. 234, 1:1 (July), 1957.

Smoking Drivers—A direct association exists between cardiovascular disease death rates and the number of cigarettes habitually smoked. Superimposed on this relationship is a further sharp rise associated with automobile driving in excess of 12,000 miles annually. From this one might conclude that if you must smoke too much don't drive too much—or vice versa.

MILLS, C. E., and PORTER, M. M. Tobacco Smoking and Automobile Driving Stress in Relation to Deaths from Cardiac and Vascular Causes. Am. J. M. Sc. 234, 1:35 (July), 1957.

Adults Too—"After two years of unsupervised use of a dentifrice containing stannous fluoride . . . a statistically significant reduction in the incidence of caries in adults has been observed."

MUHLER, J. C., et al. Effect of a Dentifrice Containing Stannous Fluoride on Dental Caries in Adults. J. Am. Dent. A. 52, 2:196 (Aug.), 1957.

Cervical Cancer—Almost all the women over age 19 in a Southern county (a total of 17,761) were induced to have cytologic tests for cervical carcinoma. The data obtained indicate that new cases develop at the rate of 1.8 per thousand each year—probably a prevalence and incidence figure valid for the entire United States.

NIEBURGS, H. E., et al. Mass Screening of the Total Female Population of a County for Cervical Carcinoma. J.A.M.A. 164, 14:1546 (Aug. 3), 1957).

Eat Less Fat—In this "official" report to the American Heart Association evidence is corralled which suggests a possible general association between certain circulatory diseases and high fat consumption. It is difficult to disentangle this from many other dietary factors. The evidence does not convey any specific implications for dietary changes except this: get 25 to 30 per cent of your calories from fat instead of the current average of 40 to 45 per cent. The entire report should, of course, be read.

PAGE, I. H., et al. Atherosclerosis and the Fat Content of the Diet. Circulation 16, 2:163 (Aug.), 1957.

A Polio Tragedy—This is a frank discussion of possible mistakes made in the epidemiologic approach to, and the management of, the initial case (a missed case of paralytic poliomyelitis in an open children's ward). Medical follow-up of, and the administration of globulin to, the exposed children might have prevented or modified some of the secondary cases.

PECZENIK, A., and DUTTWEILER, D. W. A Preventable Outbreak of Poliomyelitis. Arch. Int. Med. 100, 7:108 (July), 1957.

No Place Like Home—The handicapped child's physical welfare and his social and emotional needs demand the earliest possible discharge from an institution into a home. Many factors other than medical matters influence success in getting the child into a good home environment. The authors are not satisfied with the slowness with which these imperative needs are being met. Perhaps you would feel the same about the situation in your community if a similar survey were made there.

WALLACE, H. M., et al. A Report on Foster Home Placement as a Resource for Handicapped Children. Pediatrics 20, 2:358 (Aug.), 1957.

For the Sick and Aging—Running a good nursing home calls for a variety of skills and much technical knowledge. There were no school courses for persons wishing to enter this field so a learn-on-the-job program seemed the most likely to answer the need. Here is an account of the way one such course was worked out.

WATERMAN, T. L. An Education Program for Nursing Home Personnel. Nursing Outlook 5, 8:482 (Aug.), 1957.

How Much Organization?—The reflective reader, however little he may be professionally concerned with water resources, will find in this brilliant preamble to a committee report the source of considerable profit—and pleasure—for what is said here about public rejection of expert advice in this field, may apply equally to the reader's cherished profession goals.

WOLMAN, A., et al. Basic Principles of a National Water Resources Policy. J. Am. Water Works A. 49, 7:825 (July), 1957.

Birth Hazards—Here are but two of many attention-catching quotations you might someday want to use: "The number of lives lost . . . during the period extending from the 20th week of gestation to the 7th day after birth is

almost equal to the number lost during the next 40 years of the life span." "In New York State in 1954 almost 12,000 (such) lives were lost. At 70 years per life this represents a greater loss of human years than is represented by all the deaths after age 60. . . ."

YANKAUER, A. The Public Health Aspects of Perinatal Mortality. New York State J. Med. 57, 15:2499 (Aug. 1), 1957.

If additional information is desired regarding the articles listed in this bibliography, please communicate directly with the publications in which they appeared; the addresses are furnished for your convenience.

Am. J. Hyg. (American Journal of Hygiene), 615 N. Wolfe St., Baltimore 5, Md.
Am. J. M. Sc. (American Journal of the Medical Sciences), Lea & Febiger, 600 S. Washington Sq., Philadelphia 6, Pa.
Arch. Int. Med. (Archives of Internal Medical), American Medical Association, 535 N. Dearborn St., Chicago 10, Ill.
Canad. J. Pub. Health (Canadian Journal of Public Health), 150 College St., Toronto 5, Canada.
Circulation. American Heart Association, 381 Fourth Ave., New York 16, N. Y.
J. Am. Dent. A. (Journal of the American Dental Association), 222 E. Superior St., Chicago, Ill.
J.A.M.A. (Journal of the American Medical Association), 535 N. Dearborn St., Chicago, Ill.
J. Am. Water Works A. (Journal of the American Water Works Association), 2 Park Ave., New York 16, N. Y.
J. Chronic Dis. (Journal of Chronic Diseases), C. V. Mosby, 3207 Washington Boulevard, St. Louis, Mo.
Ment. Hyg. (Mental Hygiene), National Association for Mental Health, 372–374 Broadway, Albany 7, N. Y.
Modern San. (Modern Sanitation), 855 Avenue of the Americas, New York 1, N. Y.
New York State J. Med. (New York State Journal of Medicine), 292 Madison Ave., New York 17, N. Y.
Nursing Outlook, American Journal of Nursing Company, 2 Park Ave., New York 16, N. Y.
Pediatrics (Journal of the American Academy of Pediatrics), 301–327 E. Lawrence Ave., Springfield, Ill.
Pub. Health (Public Health), Society of Medical Officers of Health, Tavistock House, Tavistock Sq., London, W.C.1, England.
Pub. Health Rep. (Public Health Reports), Gov. Ptg. Office, Washington, D. C.

Association News

EIGHTY-FIFTH ANNUAL MEETING
AMERICAN PUBLIC HEALTH ASSOCIATION
CLEVELAND, OHIO — NOVEMBER 11–15, 1957

Let's Have a New Look at the Journal

Among the recommendations of the Task Force Report was the proposal that the content and format of the Journal be reviewed to see how it could best meet the needs of public health workers in the years ahead. The Editorial Board has given serious consideration to this recommendation and wishes to invite the collaboration of the Association membership in carrying it out.

The Editorial Board will appreciate suggestions and comments on the content and make-up of the Journal. For example: Do you like the Journal as it is now? Do you want it changed in any way? If so, how do you want it changed? Should there be any change in the kinds of articles? Should there be more scientific articles—technical papers—general, philosophical contributions? Is too much space allocated to nontechnical matters: Association News, News from the Field, Affiliated State Societies? Are the editorials of value to the readers and responsive to the health problems of our time? Or there may be other matters on which you wish to comment.

Several channels are or will be available for the expression of opinion. Comments may be sent directly to Granville W. Larimore, M.D., Chairman, Editorial Board, American Journal of Public Health, 1790 Broadway, New York 19. Furthermore, each Section that has scheduled a discussion of the Task Force recommendations at the Annual Meeting is being asked to refer to those concerning the Journal. Section Secretaries will be requested to report the discussions to the Editorial Board. The Board hopes that in this way a good response will be received from those attending the Annual Meeting.

While attention has been directed at the content of the Journal, the Editorial Board is concerned as well with its appearance. Any comments that the readers may have on a color for the cover, on text format, and the like will be welcome. At the same time, the Board is also consulting technical experts in matters of design, layout, and related areas.

The Journal is the voice of the Association and its members, and it is the sincere hope of the Board that by working together with the membership it will be possible to articulate, to express, and to meet the needs and desires of public health workers most appropriately.

85th ANNUAL MEETING

HOW TO MAKE HOTEL RESERVATIONS FOR THE CLEVELAND MEETING

A HOUSING BUREAU will be operated by the Cleveland Convention Bureau for the 85th Annual Meeting of the APHA in Cleveland, Ohio, November 11–15. Since all requests for rooms will be handled in chronological order, you are urged to send in your reservation as quickly as possible on the form below.

HOTELS HOLDING ROOMS FOR THE APHA AND RATES *

Hotel	Single	Double	Twin Beds
Auditorium Hotel, 1315 E. 6th St.	$4.75– 8.00	$ 7.50–10.00	$10.00–12.00
Carter Hotel, Prospect and E. 9th St.	5.50– 9.25	8.50–13.50	9.50–14.25
Cleveland Hotel, Public Square	6.50–11.00	9.00–14.00	10.50–20.00
Hollenden Hotel, 610 Superior Ave.	5.00– 9.00	8.00–12.00	9.00–14.00†
Manger Hotel, 1802 E. 13th St.	5.00– 9.00	7.00– 9.00	9.00–13.00
Olmsted Hotel, Superior and E. 9th St.	4.25– 9.00	7.00–11.00	8.50–11.00
Statler Hotel, Euclid and E. 12th St.	6.00–13.00	10.00–16.00	11.00–18.50

* Parlor Suites available in all these hotels. Rates on request.
† Studios $14.00–30.00.

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HOTEL RESERVATION FORM

MAIL TO: Mrs. Louise D. Perkins, Director
Cleveland Housing Bureau, APHA
511 Terminal Tower
Cleveland 13, Ohio

..... 1957
(Date)

Please make the following reservation:

Hotel ..... First Choice

Hotel ..... Second Choice

Hotel ..... Third Choice

Single rooms are very scarce; please arrange for sharing if possible.

Arrival 1957

Departure 1957

.....Single room(s) for ..... person(s). Rate $..... to $..... per room

.....Double Bedroom(s) for ..... person(s). Rate $..... to $..... per room

.....Twin Bedroom(s) for ..... person(s). Rate $..... to $..... per room

The names and addresses of all persons who will occupy the room(s) requested must be listed. Please be sure to indicate arrival and departure dates.

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Name of Applicant.....

Street ..... City..... Zone.... State.....

NOTE: You will receive confirmation direct from the hotel.

Proposed Statement on Poultry Inspection

The following report of the Subcommittee on Poultry Inspection and Sanitation was prepared as the result of action taken by the Executive Board to formulate an outline of action and principles for the guidance of state and local health departments. The report has not yet been acted upon by the Committee on Evaluation and Standards but approval has been given to publication of the report prior to committee action. If so recommended by the Committee on Evaluation and Standards, the report may be presented to the Governing Council for adoption as an Association statement.

The subcommittee report is presented here for the information of the membership and to stimulate comments concerning the report. All comments should be directed to Berwyn F. Mattison, M.D., Chairman, Committee on Evaluation and Standards, at the Association office so that they are received before November 6. Comments received will be made available to the Governing Council should the statement be presented to the Council for action.

This committee was appointed to inquire into the health problems arising from the slaughter and distribution of poultry and poultry products and to report its findings and recommendations to the Association. After a careful study of the problems involved the following report and recommendations are submitted.

Background

The processing and distribution of poultry and poultry products as conducted in the United States today presents significant health and consumer problems which demand action by responsible official agencies at the federal, state, and local levels. These problems include health hazards to the consuming public and to poultry plant workers through the slaughter of sick and diseased birds, the contamination of otherwise healthy birds in insanitary plants, and through the mishandling of poultry and poultry products in channels of distribution. State and local health and regulatory agencies have been seriously handicapped by the lack of specific, uniform legislation to control these problems.

Over 30 per cent of the cases of reported food-borne diseases * have been associated with the consumption of poultry. Some of these food-borne outbreaks resulted from insanitary conditions within or outside processing establishments, but a substantial number were caused by organisms of poultry origin, particularly Salmonella.

The health of employees in the poultry industry is also involved. Reports of the Bureau of Labor Statistics indicate that the injury-frequency rate in the poultry industry is the third highest of the 135 manufacturing industries reporting, exceeded only by the rates for certain logging and sawmill operations.† It is almost twice that of the red meat packing industry. "Injury-frequency rate" is the number of disabling "injuries," including infections, per million man-hours worked, which result in death, permanent physical impairment, or loss of employment for one or more days. For example, if an employee contracts a skin rash but continues to work, it is not reported. Although specific in-

Report of the Subcommittee on Poultry Inspection and Sanitation of the Committee on Evaluation and Standards of the American Public Health Association, submitted to the Committee on Evaluation and Standards.

* As reported by the states to the National Office of Vital Statistics.

† Quarterly Reports, Injury Rates, Manufacturing. 1955 and 1956. Bureau of Labor Statistics, Washington, D. C.

fections or injuries are not named in reports issued by the Bureau of Labor Statistics, it is well known that psittacosis, Newcastle disease, erysipeloid, and various other infections may be transmitted by poultry to plant employees.

Aside from the health problems associated with the processing and consumption of poultry, consumer confidence is of major importance. Consumers in the United States depend on official agencies for assurance that foods are not only safe to eat, but that they have been processed and handled in a clean manner under sanitary conditions, that they have not been contaminated in any way, and that they are truthfully and informatively labeled. This concept, often spoken of as consumer expectancy, has been established in the provisions and administration of the Federal Food, Drug, and Cosmetic Act and in the Meat Inspection Branch of the U. S. Department of Agriculture, as well as in state and local food control laws and regulations.

Many diseases of poultry are considered not dangerous to man, yet they may seriously affect birds and render them repugnant for use as food. Other forms of adulteration are also unacceptable, whether or not hazardous to the consumer. For example, a piece of poultry containing an abscess or soiled with feces might be cooked so as to be safe to eat, but no housewife would knowingly buy or serve it. In some areas when it became known that horse meat was being sold as hamburger, sales of the latter dropped as much as 90 per cent. Moreover, when it was learned that turkeys infected with psittacosis were being processed, sales of turkeys dropped precipitously in many areas.

The problems which confront health and regulatory agencies in connection with poultry have reached their present major proportions only within recent years. Formerly the marketing of poultry was conducted as a local industry. The housewife selected the live bird and either dressed it herself or had it dressed for her. This is not true today.

The poultry industry has more than doubled in size since 1940. The current annual per capita consumption of poultry meat exceeds 34 pounds and the annual retail value exceeds three billion dollars. This has resulted from radical changes in buying habits and merchandizing methods, including the marketing of a large volume and variety of new convenience foods which use poultry as an ingredient. Processing has changed from on-the-spot slaughter, observed by the consumer, to mass production methods.

Mass handling of a perishable, easily contaminated product, such as poultry, creates new and special health hazards if adequate controls are not instituted. In the case of poultry and red meat animals the introduction of diseased birds or animals into the processing plant and the presence of filth in the form of feces and other organic wastes require special safeguards beyond those necessary for most other food industries.

While responsible segments of the poultry industry have recognized these problems and have instituted research and improved methods designed to protect the wholesomeness of the product, there still remain many public health problems presently unsolved.

Fifty years of experience has shown that the only effective way to insure the wholesomeness and acceptability of commercially processed red meats is through continuous official supervision of processing operations, combined with antemortem and post-mortem inspection, by persons with proper training and experience. Similar supervision and inspection is necessary in the poultry industry. Consumer protection mandates that these activities be conducted by em-employees of official agencies which have as their primary responsibility the

safeguarding of health and consumer interests.

The investigation and control of food-borne disease outbreaks and of disease outbreaks among poultry plant employees are the direct responsibility of state and local health agencies. Irrespective of what agency has jurisdiction for supervising plant operations or for inspecting the product, the health authority cannot be superseded in his fundamental responsibility for protecting the health of the people.

The federal government can provide valuable assistance to state and local governments by providing the actual inspection services in poultry plants engaged in interstate commerce. This has been done in the case of meat inspection on a mandatory basis. Since poultry has achieved national distribution, it is logical that mandatory federal inspection should be provided in plants which engage in interstate commerce.

It should be emphasized, however, that more than twice as many poultry processing plants engage only in intrastate commerce as ship across state lines, and a significant proportion of processed poultry is produced in such plants. It follows, therefore, that state and local agencies will still be faced with a major part of the inspection responsibility. In the absence of state or local inspection, uninspected plants could well become a dumping ground for diseased poultry. Moreover, the problem of contamination or adulteration of intrastate poultry after it leaves the inspected establishment will rest exclusively on state and local agencies. This amounts to approximately half of the total production.

State and local governments have adopted varying ordinances and regulations in an effort to solve these problems. Many of them, however, have lacked such essentials as mandatory ante-mortem and post-mortem inspection. Realizing the need for uniform and effective action in this field, in 1952 the Association of State and Territorial Health Officers urgently requested the U. S. Public Health Service to undertake the task of drafting a model poultry ordinance which could be adopted by state and local units of government. Many similar recommendations for the development of such an ordinance were made by other professional organizations such as the U. S. Livestock Sanitary Association, the Association of Food and Drug Officials of the United States, and the Conference of Public Health Veterinarians.

Pursuant to these requests, in 1955 the Public Health Service completed and published those portions of a model poultry ordinance dealing with factors of sanitation. At this time a draft of proposed provisions of inspection for wholesomeness for incorporation into the model ordinance has been prepared but not published. Concurrently a "Manual for the Examination and Evaluation of Poultry and Poultry Products" has been prepared by the Public Health Service and the Food and Drug Administration (concurred in by the Department of Agriculture and the Department of Defense). The manual has been distributed in mimeographed form by the Food and Drug Administration for administrative use. It deals with inspection for wholesomeness procedures and disposition of diseased poultry carcasses and is designed as a technical guide to supplement poultry inspection laws and ordinances.

General recognition of the need for mandatory federal inspection of poultry in interstate commerce led to the introduction in Congress, in 1956 and 1957, of numerous bills on the subject. After extensive hearings before Congressional committees Public Law 85–172, "To provide for the compulsory inspection by the U. S. Department of Agriculture of poultry and poultry products," was enacted.

Testimony presented at these hearings

supported the need for such legislation. However, a review of the records of the hearings reveals that segments of the poultry industry and some farm organizations placed commercial considerations above health and consumer safeguards. For example, they supported the continued practice of processing so-called "New York-dressed" poultry (uneviscerated carcasses held for later evisceration) and opposed mandatory ante-mortem inspection of poultry. This was directly contrary to the testimony of every public health and consumer spokesman as well as representatives of the poultry industry.

The magnitude and complexity of the problems existing in the poultry field reflect the obvious and urgent needs of state and local governments for assistance and guidance in determining the basic essentials which must be included in any effective poultry inspection program. After extensive study this committee has summarized them as follows.

Basic Essentials

Program Objectives and Personnel

The program must have as its primary objective the health protection of the consumers of poultry and poultry products and of poultry plant employees. The health department is, therefore, the logical agency to administer the program.

The administrator must have the necessary authority and be responsible for the official acts of those engaged in carrying out the program.

Personnel engaged in enforcing the program must not be subject to the direction or control of the inspected establishment nor of a competing establishment nor have any monetary interest therein. They must be qualified to perform their assigned duties and be subject to direct administrative action and discipline of only the enforcing agency. They should receive remuneration commensurate with their training, experience, and responsibilities and be provided with adequate job security.

Obviously, serious conflict of interests occurs when owners or employees of inspected establishments are authorized to do any official act of the inspecting agency. Moreover, the administrator cannot exercise effective control over the actions of employees of other agencies. Financial, political, or job security pressures may affect the attitude and conduct of such employees to the detriment of the inspection service and the consuming public.

The integrity of the official stamp or legend of the inspecting agency must be assured. Therefore, all personnel engaged in enforcing the program should be employees of the agency represented by the official stamp or legend applied to the product, e.g., when a federal legend appears on the product, federal employees must conduct the inspection; whereas if the product is inspected by employees of a state agency, the legend of that state agency must be used. When an official legend for wholesomeness is placed on poultry or poultry products it should be entirely factual and not misleading in any respect. Otherwise, the product is actually mislabeled and in violation of federal and state food and drug laws.

Ante-Mortem Inspection

Ante-mortem inspection is a necessary part of inspection for wholesomeness. It must be mandatory, and must be sufficient to prevent the slaughter for processing of birds which can be detected as being unfit for human food. This will prevent unnecessary exposure of plant employees to diseased poultry and will minimize contamination of processing plant and equipment, of employees' hands, and of healthy poultry. It will also prevent the approval of carcasses on post-mortem inspection alone because of a lack of readily identifi-

able lesions when ante-mortem signs would have warranted condemnation. This occurs in many instances of respiratory and nervous system infections and in acute fulminating infections.

To accomplish this purpose all poultry should be visually observed at the plant by an official inspector while in batteries, coops, or pens. Individual birds should be removed and examined more closely, visually and otherwise, when it is deemed necessary by the inspector in order to determine proper disposition.

Poultry found to be sick or otherwise unfit for human food must be condemned, killed, and destroyed or denatured under the supervision of an inspector in such a manner as to preclude its use for human food and prevent the dissemination of disease.

Poultry suspected of being unfit for human food, but not exhibiting signs of a nature to warrant condemnation on ante-mortem inspection, must be identified as suspect, held, slaughtered, and processed separately from other poultry and subjected to post-mortem inspection under such conditions as are necessary to allow careful examination and correlation of ante-mortem signs with post-mortem findings. Equipment and facilities used for suspect poultry should be cleaned and disinfected thoroughly before re-use.

If practicable, the administrator may consign large lots of diseased or suspect birds for observation or treatment under the supervision of livestock sanitary authorities.

Post-Mortem Inspection

Each poultry carcass is a separate entity in so far as wholesomeness and freedom from disease are concerned and should be evaluated separately. Each poultry carcass and its attached or identified viscera must be presented to the inspector for examination immediately after the bird has been slaughtered, defeathered, and washed.

Carcasses must not be routinely chilled or stored, nor shipped or otherwise held in the uneviscerated form for delayed evisceration and post-mortem inspection. Delayed evisceration of poultry often results in mass contamination of carcasses with feces and other wastes, and in cross-contamination from diseased or carrier carcasses to healthy carcasses. Post-mortem recognition of otherwise readily detectable disease conditions may be difficult, and correlation of ante-mortem and post-mortem findings is virtually impossible if inspection is not made immediately after slaughter.

An inspector must examine the external and internal surfaces, and the viscera of each carcass at the time of evisceration, both visually and by palpation as may be necessary to determine proper disposition. The carcasses must be opened and presented to the inspector in such a manner as to permit proper examination and evaluation.

Additional inspection of carcasses and edible viscera after completion of evisceration must be conducted to the extent necessary to insure that all inedible parts have been removed, and the product is clean and unadulterated.

Inspection of Poultry Products

Careful supervision over the composition and processing of poultry products, such as soups, salads, pies, and prestuffed and precooked poultry must be maintained by the inspector. Ingredients used in poultry products must be inspected at such times and under such conditions as are necessary to assure their fitness for use.

Disposition

Poultry, ingredients, and poultry products, or portions thereof, found by the inspector to be diseased or otherwise unfit for human food must be condemned and destroyed or denatured under the supervision of an inspector

so as to preclude their use for human food or to prevent dissemination of disease.

Before leaving the establishment, poultry and poultry products passed for human food must be properly packaged and identified with the inspection legend.

Reinspection

Poultry and poultry products must be reinspected in the establishment at such times and under such conditions as are necessary to assure their continued fitness for human food. Any foods found unfit prior to leaving the control of the processing plant must be condemned, even if previously inspected and passed for wholesomeness.

Inspection Facilities

The processing establishment should provide adequate facilities and accommodations for inspectors and inspection procedures. Inspection stamps, tags, and other materials bearing the inspection legend must be kept in a secure place; records and other supplies must be suitably stored and lockers made available for the inspectors' clothing.

Laboratory Service

Laboratory services should be available to the enforcement agency when necessary to obtain chemical, pathologic, or microbiologic information.

Presence of Inspector; Access to Plant

An inspector must be present in the processing plant at all times when any processing operations are being conducted, including reprocessing, packing, or repacking.

Each inspector must be granted access at all times to any part of a processing establishment to which he is assigned, provided access is for the purpose of carrying out his officially assigned responsibilities under the law or regulations of the inspection service.

The administrator must have authority to require that processing operations be conducted during reasonable hours and that each operator of a processing plant obtain approval of a time schedule for processing operations and give reasonable advance notice whenever it is desired to conduct processing operations outside the established schedule.

Reports, Records, Cooperation with Other Agencies

The inspector of each poultry processing establishment must keep complete records of his official activities and submit reports periodically to the administrator. These reports should contain information regarding percentage of morbidity and the incidence of common infectious diseases and neoplasia recognized in carcasses of birds examined. Whenever inspection findings may promote the control or prevention of disease in man or other animals such findings should be promptly transmitted to appropriate health or livestock disease control agencies. Cooperative action should be instituted between agencies when such action will facilitate the control of disease in man or animals.

Plant Sanitation

Obviously the consumer protection gained through ante-mortem and post-mortem inspection of poultry will be largely nullified unless the plant, its equipment, and facilities are constructed, maintained, and operated in a clean, sanitary manner. Therefore, standards of sanitation, including requirements dealing with the many aspects of sanitation in the processing of poultry, must be kept in mind when considering basic ordinance requirements. Such standards of sanitation are contained in Publication No. 444 Poultry Ordinance, published by the Public Health Service, U. S. Department of Health, Education, and Welfare, Washington, D. C.

The committee feels, however, that the following comments should be made:

a. There has been substantial improvement during recent years in sanitary facilities and operations of many poultry processing establishments. In spite of this, sanitary conditions in a major part of the industry are far from satisfactory. This is true even in many large modern plants because of continued handling of so-called "New York-dressed" poultry, and the fact that eviscerating operations in many plants are conducted at such high speeds as to make the adherence to sanitary procedures and the prevention of contamination of the product an impossibility.

b. All improvements in sanitation in the poultry processing plant contribute toward safer and better working conditions for employees. A special hazard to employee health, however, is the prevalence of aerosols carrying viruses or other organisms (for example, the psittacosis virus, Salmonella, and paracolon organisms) which may enter the plant on the birds or in their organs and body cavities. The committee recommends that studies be conducted to determine measures which can be used to control this problem, including a study of downdraft ventilating systems. An additional benefit of control measures would be the prevention of product contamination by organisms carried in the aerosols.

Labeling

The identity of inspected poultry and poultry products must be maintained from the time they have been inspected and passed at the plant until they reach the consumer. Otherwise, uninspected poultry produced and held under insanitary conditions could be substituted.

Each container of packaged poultry must bear the inspection stamp of the inspecting agency, a plant identification number assigned by the inspecting agency, the name of the product, the quantity of food in the container, and the name and address of the packer. Each container must bear any additional labeling required by applicable food and drug laws in the manner and form required by such laws.

When bulk poultry or poultry parts is shipped from an inspected plant for retail sale (shipment other than to another inspected plant for further processing) each carcass or major portion must be identified with the inspection legend and plant number by use of a suitable tag or other marking securely attached to the carcass or part.

All labels, tags, stamps, devices, or materials bearing the inspection mark must be under the sole jurisdiction of the inspector and must be placed on the product or container by or under the supervision of an inspector. The re-use of a container bearing any official inspection mark will defeat the purposes of an inspection program and must be prohibited.

Adequate industry records of receipt, sale, and distribution of poultry should be kept and made available to the enforcing agency.

Exemptions

Care must be taken that no exemption be granted which will nullify or weaken the program. No exemption should be granted to any producer, processor, wholesaler, or retailer with respect to plant sanitation or inspection requirements. No uninspected poultry or poultry products should be sold. Retail establishments should be permitted to process poultry only to the extent of cutting up or further preparing inspected poultry or poultry products for sale or service on the premises to the ultimate consumer.

Some official agencies permit the use of various types of official marks or grade labels which infer that the poultry or poultry product so marked has been inspected for wholesomeness when, in fact, it has been subjected to very inadequate sanitation safeguards and little or no inspection for wholesomeness. Only poultry from outside sources which has been inspected for wholesomeness under standards comparable to those enforced by the local inspection agency should be permitted to be brought into the jurisdiction for sale or further processing.

While it is recognized that there is some sentiment to granting exemptions

to the farmer for the sale of poultry produced and dressed by him, this practice is not in the interest of public health since it permits the sale of significant quantities of uninspected poultry to retail markets, restaurants, and consumers without adequate sanitation or inspection safeguards.

It is also recognized that some members of certain religious groups feel they should be exempted from some of the procedures required in this type of program because of special dietary or food preparation rules. The committee has been unable to find any instance where inspection for wholesomeness or plant sanitation conflict with any religious rules. In fact, it is inconceivable that any religious prohibition or rule would permit the slaughter of diseased poultry or require insanitary plant conditions or processing procedures.

Summary and Recommendations

Major public health problems face state and local governments with respect to the processing and consumption of poultry and poultry products. State and local units of government, each in its own way, have been attempting with only minor success to solve these problems. The problems have grown faster than local government can apply solutions and have now reached such proportions that states and municipalities are urgently requesting assistance from the Congress and various federal government agencies in solving them. Similar requests have been directed to the APHA, which organization has authorized this subcommittee to investigate the problems and recommend appropriate action.

The committee finds that the public health problems are twofold: (1) the transmission of disease to consumers of poultry and poultry products and to poultry plant workers from sick or diseased birds, and (2) illness to the consumer of poultry caused by insanitary poultry plant conditions or contamination of poultry and poultry products during distribution.

A third problem, not entirely of a public health nature, involves the distribution of poultry and poultry products containing filth and decomposition, which have been cooked or processed so as to render them relatively safe to eat but which are repugnant to the consumer. The sale of such products is both fraudulent and deceptive.

The committee believes that the only effective solution to these problems lies in the inauguration of an effective, uniform, mandatory system of inspection of poultry and poultry products and the institution of adequate poultry plant sanitation standards to be enforced by departments of health at all levels of government.

The federal Congress has enacted legislation which will require the inspection of poultry and poultry products traveling in interstate commerce and which will provide authority to establish standards of sanitation to be met by plants desiring to enter the channels of interstate commerce.

The enactment of such federal legislation does not eliminate the problems facing state and local health departments since those departments are primarily responsible for protecting the health of the people and for investigating and controlling all outbreaks of disease, including those originating in poultry plants or traceable to poultry or poultry products.

The fact that the federal government provides an inspection service in a given industry does not preempt or supplant the authority and responsibility of state and local health agencies to protect the health and welfare of citizens within their respective jurisdictions, including appropriate investigations when necessary in federally inspected plants.

Moreover, federal inspection will not

reach the vast majority of poultry plants whose products do not enter interstate commerce. These must be regulated by local and state governments. It is estimated that more than twice as many plants will fall into this category as will be subject to federal inspection. States and units of local government need assistance in the preparation of uniform standards to be applied in insuring the integrity of inspected poultry and poultry products.

The U. S. Public Health Service Recommended Poultry Ordinance—1955 Edition, officially designated as PHS Publication No. 444, embodies standards of sanitation which meet essential public health requirements. The committee also feels that requirements for inspection of poultry for wholesomeness embodied in a document entitled "Study Draft of Basic Inspection for Wholesomeness Provisions Proposed for Incorporation in PHS Publication No. 444 Poultry Ordinance, 1955 Edition" dated March 20, 1957, include public health standards which will insure the processing of only healthy wholesome poultry and poultry products.

The document entitled "Manual for the Examination and Evaluation of Poultry and Poultry Products," dated February, 1957, is a necessary and satisfactory adjunct to the interpretation of the "Inspection for Wholesomeness" standards referred to in the preceding paragraph.

Copies of the U. S. Public Health Service Recommended Ordinance—1955 Edition; a Study Draft of Basic Inspection for Wholesomeness Provisions Proposed for Incorporation in PHS Publication No. 444 Poultry Ordinance, 1955 Edition, dated March 20, 1957; and a "Manual for the Examination and Evaluation of Poultry and Poultry Products," dated February, 1957, are attached to this [original] report as addenda.

The American Public Health Association is an appropriate body to bring to the attention of agencies of the federal government and to state and local governing officials the scope and urgency of these problems and to make firm recommendations for correcting or alleviating them. To that end, this committee respectfully offers the following recommendations:

1. That regulatory functions which are instituted to protect the health of the consumer and the worker are more appropriately administered by consumer protective agencies, such as departments of health rather than by government agencies concerned principally with the promotion and the marketing of agricultural products.

2. That the Secretary of the United States Department of Health, Education, and Welfare and the Surgeon General of the U. S. Public Health Service be urged to publish and make available at the earliest possible date a recommended complete ordinance dealing not only with poultry plant sanitation, but also with inspection of poultry for wholesomeness.

3. That the Commissioner of Food and Drugs, U. S. Food and Drug Administration, and the Surgeon General, U. S. Public Health Service, be urged to expedite the publication and distribution of a document entitled "Manual for the Examination and Evaluation of Poultry Products" presently in draft form dated February, 1957.

4. That the U. S. Public Health Service continually investigate and evaluate the public health problems associated with the slaughter, processing, and distribution of poultry and poultry products and recommend to state and local governments appropriate remedies.

5. That the American Public Health Association inform the appropriate agencies in the several states of the public health problems existing in connec-

tion with the processing of poultry and the need for uniform, effective measures to control them.

6. That the American Public Health Association commend the U. S. Public Health Service and the U. S. Food and Drug Administration for their contributions to the solution of public health problems in the field of poultry processing and that they be encouraged to provide additional information and leadership in this field to health agencies within the several states.

7. That the American Public Health Association transmit copies of this report to the Secretary of the U. S. Department of Health, Education, and Welfare, to the Surgeon General of the U. S. Public Health Service, and to the Commissioner of Food and Drugs, U. S. Food and Drug Administration.

8. That this report be published in a forthcoming issue of the Journal.

Henry A. Holle, M.D., State Department of Public Health, Austin, Tex., Chairman
S. W. Barker
J. Robert Cameron, M.P.H.
William H. Feldman
Millard F. Gunderson, Ph.D.
T. E. Sullivan

Journals Wanted

The Association has received several requests for the October, 1955, March, May, and June, 1957, Journals from persons who bind the magazines. These persons and the Association would be grateful if members having no use for these particular issues would make them available to others. Such generosity will be much appreciated. The magazines should be sent to the Association office at 1790 Broadway.

News of Affiliated Societies and Branches

Arkansas, New Affiliate, Meets

The first annual meeting since affiliation of the Arkansas Public Health Association, one of five granted affiliation late in 1956, was held in Little Rock, August 5 and 6. A. L. Chapman, M.D., chief, Division of Special Health Services of the Public Health Service, represented the American Public Health Association, bringing to the gathering the greetings and the promise of continued support of APHA officers and members. W. R. Alstadt, D.D.S., president-elect of the American Dental Association, brought the greetings of that organization.

The Journal is indebted to Dr. Chapman for reporting the details of the meeting which he described as "well attended, enthusiastic, a fine meeting, and a happy experience." The theme of the meeting was "Public Health Challenges of Today." Among these challenges was one in a keynote address by Winthrop Rockefeller, now "a confirmed and active Arkansas citizen" who bade public health workers to "let people know what they are doing and the importance of their work." He had been "deeply impressed with the importance and quality of the preventive work done by health departments."

Other challenges were related to "Aging" and "Accident Prevention," which Dr. Chapman notes "contrasted sharply" with similar meetings "of a decade ago when diphtheria or food poisoning would more likely have been the topics."

The Arkansas Association reports with pride that its 1958 meeting will be held jointly with the Southern Branch. The place is Little Rock, the dates May 6–9, 1958. Joint program committees are already at work and the Little Rock Chamber of Commerce is giving "full support." Mason G. Lawson, M.D., city health officer, is general chairman.

At the recent meeting, Arthur M. Washburn, M.D., director, Division of Communicable Disease Control in the State Health Department, succeeded Margaret Vaughan, R.N., nursing director as president and was also elected representative to the APHA Governing Council. Mrs. Catherine Hidy, public health educator of the Little Rock Health Department and chairman of the 1957 meeting program committee, is president-elect and Mrs. Vada Russel, secretary-treasurer.

Ohio and Environmental Sanitation

The Ohio Public Health Association met in Columbus, May 28–29. The main course, as it were, of a varied program, was devoted to environmental sanitation. The problems of growth of communities, radioactive fallout, the veterinarian and public health, trends in milk laboratory analysis, antibiotics in milk—these discussions were capped by John D. Porterfield, M.D., Assistant Surgeon General of the Public Health Service. He spoke at the final luncheon on "A New Look at Environmental Health."

Raymond Wehr, M.D., assistant health commissioner of Cincinnati, was succeeded in the presidency by James E. Warfield, M.P.H., district sanitation consultant of the State Health Department. Virginia Jones, nutrition consultant of the State Department of Health,

was re-elected secretary-treasurer. The two vice-presidents elected are:

Earl E. Long, director of laboratories, Akron Health Department

T. A. Gardner, M.D., health officer, Southwest State Health District, Dayton

Oklahoma Affiliate Starts Journal

The Oklahoma Public Health Association followed up its 16th annual meeting January 9–11, 1957, by establishing the Oklahoma Journal of Public Health. The first issue of the new quarterly appeared in July. It is a well printed journal on good paper and carries news of both local and wider interest. Its editor is Wilson D. Steen, extension specialist, Health and Welfare Services, University of Oklahoma.

The theme of the January meeting, "Public health—a community problem" is in the President's message printed in the program. "Every member" is "in a position to help win a great victory for the people of Oklahoma by working and contributing beyond the call of duty in bringing about the enactment providing local funds for public health services in every county. Our association, by unanimous resolution, is sponsoring such legislation."

The first general session carried out the theme in two talks, one on the elements of "An Effective Public Health Program," and another on "The Responsibility of the Community in Providing Public Health Facilities." The first was given by Jack C. Haldeman, M.D., chief of general health services of the Public Health Service. The second was by a member of the Norman City Commission, Mrs. Oliver Benson. Of the 48 "Who's Who" on the program all but two were Oklahoma talent.

Glen Earley, district sanitarian of the State Health Department, was succeeded in the presidency by K. W. Navin, M.D., health officer, Pottawatomie County Health Department, Shawnee; Maybelle Cunningham is vice-president and Marjorie Butler, clerical consultant, Division of Local Health Service, State Health Department, Oklahoma City, is secretary-treasurer. The 1958 annual meeting will be held at the Texhoma Lodge, May 5–7. William Shottstaedt, associate professor of preventive medicine and public health, University of Oklahoma is chairman of the Program Committee.

West Virginia Initiates Two Awards

The West Virginia Public Health Association was a joint sponsor with the State Health Department of the 33rd annual State Health Conference in Charleston, June 5–7. The theme, "Community Health in Action," was carried out by an address on the subject by N. H. Dyer, M.D., state health officer, by a skit on "Community Activities in Action," and by a panel on the subject representing public health, medicine, nursing, voluntary health agencies, schools, colleges, labor, and management.

Two awards were established. The Merit Award to a professional "for outstanding and meritorious achievement in the field of public health" was presented to Laurene Cunningham Fisher, R.N., former director of nursing, State Health Department. The winner of the Citizen Award, also for outstanding and meritorious service to public health, was Mrs. John F. McCuskey, second vice-president, West Virginia Federation of Women's Clubs.

Oliver Matthews, senior sanitarian, Preston County Health Department was the retiring president. New officers elected are:

President—Bruce H. Pollock, M.D., health officer, Cabell-Huntington Health Department

Vice-Presidents—Oleta Riffe, nursing supervisor, Logan County Health Department; Eugene J. Powell, administrative assistant

to the director of disease control, State Health Department

Executive Secretary—Paul B. Shanks, administrative assistant, State Health Department

Treasurer—Katherine L. Brown, administrative assistant to director of tuberculosis control, State Health Department

Representative to the APHA Governing Council—Bruce H. Pollock, M.D.

Pennsylvania Association Meets

More than 1,100 persons attended the Sixth Annual Health Conference sponsored by the Pennsylvania Department of Health, the State Public Health Association, Health Council, and the State Medical Society, August 18–22, 1957. The theme of the conference was, "Problems, People and Plans." Berwyn F. Mattison, M.D., secretary of the State Department of Health, addressed the first general session on the subject, "Programs for Today." John P. Robin, chairman of the State Planning Board, and Harry G. Hanson, director, Taft Sanitary Engineering Center, further developed the "Problems" topic. At another general session on "People" the speakers were John Knutson, D.D.S., President of the APHA, Paul Lemkau, M.D., professor of public administration, Johns Hopkins University, and K. Brantley Watson, Ph.D., vice-president in charge of human relations, McCormick and Company. "Plans" were discussed by Surgeon General Leroy E. Burney and Ernest L. Stebbins, M.D., director, Johns Hopkins School of Hygiene and Public Health.

At the business luncheon of the Pennsylvania Public Health Association, Dr. Knutson reported on the Arden House Task Force Report and its implications. Here also the association's Award of Merit for outstanding contributions to the field of sanitation in Pennsylvania was presented to Chester C. Bell, director, Sanitation Section, Bureau of Environmental Health of the State Department of Health. Edward L. Sittler, president of the State Health Council, was elected an Honorary Member in recognition of his outstanding contributions to public health in the state.

Among the subjects discussed in other meetings or in curbstone conferences were radiation hazards, the handicapped child, health of the school child, veterinary public health, local health services, administrative services, and public health education.

Resolutions adopted commended the governor for far-sightedness in organizing the Governor's Committee on the Aging and all those responsible for adoption of the merit system for public health personnel; repledged support of the county health program of the State Department and for its efforts to restrict and control "on-lot sewage disposal" devices when community sewerage services are available.

Chairman of the Program Committee was Henry R. O'Brien, M.D., director, Professional Training, State Department of Health.

The newly elected officers of the Pennsylvania Public Health Association are:

President—Mary Ellen Beam, R.N., executive director, Public Health Nursing Service, Delaware County

President-Elect—Charles L. Wilbar, Jr., M.D., deputy secretary of Health

Vice-President—Paul W. Purdom, director, Division of Air Pollution Control and Environmental Sanitation, Department of Public Health, Philadelphia

Secretary-Treasurer—Robert H. Conn, chief, Community Health Section, State Department of Health

APHA AFFILIATED SOCIETIES AND BRANCHES

Society and Secretary

ARIZONA PUBLIC HEALTH ASSOCIATION, Goldie Gold, Maricopa County Health Dept., Phoenix
ARKANSAS PUBLIC HEALTH ASSOCIATION, Mrs. Vada Russell, State Health Dept. Bldg., Little Rock
CALIFORNIA, NORTHERN, PUBLIC HEALTH ASSOCIATION, Emanuel H. Pearl, 2220 Moorpark Ave., San Jose 28
CALIFORNIA, SOUTHERN, PUBLIC HEALTH ASSOCIATION, Byron O. Mork, M.D., University of California at Los Angeles, Los Angeles
COLORADO PUBLIC HEALTH ASSOCIATION, Margaret D. Lewis, 659 Cherokee St., Denver
CONNECTICUT PUBLIC HEALTH ASSOCIATION, Mrs. Claire Reinhardt, 310 Cedar St., New Haven
CUBAN PUBLIC HEALTH SOCIETY, Dr. Raphael Calvo Fonseca, Calle 19 No. 511 Altos Vedado, Havana
FLORIDA PUBLIC HEALTH ASSOCIATION, Nathan J. Schneider, Ph.D., P. O. Box 210, Jacksonville
GEORGIA PUBLIC HEALTH ASSOCIATION, Carl Fox, 33 Pryor St., N.E., Atlanta
IDAHO PUBLIC HEALTH ASSOCIATION, Wesley O. Young, D.M.D., P. O. Box 640, Boise
ILLINOIS PUBLIC HEALTH ASSOCIATION, William J. Hixon, Evanston Health Dept., Evanston
INDIANA PUBLIC HEALTH ASSOCIATION, Hester Beth Bland, 1330 W. Michigan St., Indianapolis
IOWA PUBLIC HEALTH ASSOCIATION, Mary L. Wombacher, State Dept. of Health, Des Moines
KANSAS PUBLIC HEALTH ASSOCIATION, Evelyn Ford, State Board of Health, State Capitol, Topeka
LOUISIANA PUBLIC HEALTH ASSOCIATION, Mrs. Lucille Sawyer, Shreveport
MASSACHUSETTS PUBLIC HEALTH ASSOCIATION, Mrs. Elizabeth E. Case, Dept. of Health, Cambridge
MICHIGAN PUBLIC HEALTH ASSOCIATION, Maurice J. Mayer, 405 Hollister Bldg., Lansing
MINNESOTA PUBLIC HEALTH CONFERENCE, D. S. Fleming, M.D., State Dept. of Health, University Campus, Minneapolis
MISSISSIPPI PUBLIC HEALTH ASSOCIATION, H. E. Boone, P. O. Box 1700, Jackson
MISSOURI PUBLIC HEALTH ASSOCIATION, Mrs. Nadia Craver, 5th Fl., State Office Bldg., Jefferson City
MONTANA PUBLIC HEALTH ASSOCIATION, Emma Wright, Box 811, Harve
NEBRASKA PUBLIC HEALTH ASSOCIATION, Matilda McIntire, M.D., Omaha-Douglas County Health Dept., Omaha
NEW MEXICO PUBLIC HEALTH ASSOCIATION, Robert Howell, 305 Terrace Ave., N. E., Albuquerque
NEW YORK CITY, PUBLIC HEALTH ASSOCIATION OF, Joseph Kadish, 164 W. 174th St.
NEW YORK STATE PUBLIC HEALTH ASSOCIATION, Mary C. Egan, State Dept. of Health, 333 E. Washington St., Syracuse 2, N. Y.
NORTH CAROLINA PUBLIC HEALTH ASSOCIATION, R. W. Brown, Bucombe County Health Dept., Asheville
NORTH DAKOTA PUBLIC HEALTH ASSOCIATION, Jean E. Norton, R.N., Box 133, Bismarck
OHIO PUBLIC HEALTH ASSOCIATION, Virginia Jones, Ohio Dept. of Health, Dayton
OKLAHOMA PUBLIC HEALTH ASSOCIATION, Marjorie Butler, 3400 North Eastern, Oklahoma City
OREGON PUBLIC HEALTH ASSOCIATION, T. M. Colasuonno, M.D., State Board of Health, Portland
PENNSYLVANIA PUBLIC HEALTH ASSOCIATION, Robert H. Cons, 303 N. Second St., Harrisburg
PUERTO RICO PUBLIC HEALTH ASSOCIATION, Margarita Martinez, Apartado 211, San Juan 2
SOUTH CAROLINA PUBLIC HEALTH ASSOCIATION, Laura M. DeMarse, State Health Dept., Columbia
SOUTH DAKOTA PUBLIC HEALTH ASSOCIATION, Louis E. Remily, State Dept. of Health, Pierre
TENNESSEE PUBLIC HEALTH ASSOCIATION, C. B. Tucker, M.D., State Dept. of Health, 420 Sixth Ave., N., Nashville
TEXAS PUBLIC HEALTH ASSOCIATION, H. E. Drumwright, City Health Dept., Dallas
UTAH PUBLIC HEALTH ASSOCIATION, Mrs. Virginia Cole, City Health Dept., 115 S. State St., Salt Lake City
VIRGINIA PUBLIC HEALTH ASSOCIATION, William A. Dorsey, P. O. Box 2088, Richmond
WASHINGTON STATE PUBLIC HEALTH ASSOCIATION, Kathleen Burwell, R.N., State Dept. of Health, Smith Tower, Seattle
WEST VIRGINIA PUBLIC HEALTH ASSOCIATION, Paul B. Shanks, State Health Dept., Charleston
WISCONSIN ASSOCIATION FOR PUBLIC HEALTH, Paul Weis, 1 W. Wilson St., Madison
SOUTHERN BRANCH, A.P.H.A., Mary Irene Cummins, Box 323, Harriman, Tenn.
WESTERN BRANCH, A.P.H.A., Mrs. L. Amy Darter, State Dept. of Health, 2151 Berkeley Way, Berkeley, Calif.

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Employment Service

Important Notice

At the Annual Meeting in Cleveland the Employment Service booth will be located in the Scientific Exhibit area and will be staffed by personnel of the NURSE AND MEDICAL PLACEMENT CENTER of the New York State Employment Service in cooperation with the APHA. An Association representative will be available at the booth by appointment for vocational counseling.

Employers in need of personnel and individuals interested in new positions are urged to register their needs with the Association in advance of the meeting if possible. When known the convention address should be indicated.

The following pages present information for those seeking public health personnel and for those seeking positions in public health. Other information concerning vacancies and personnel available is on file in the Association office. Anyone wishing to have the benefit of this additional information can obtain it by writing to the Vocational Counseling and Placement Service of the Association.

Advertising space in these pages is available at special rates for the use of employers or individuals. The charges are $5 for the first 50 words or fraction thereof and $1 for each additional 10 words or fraction thereof. There is no charge to members or Fellows of the Association who desire to utilize the **Positions Wanted** portion of these pages. **Closing date** for receipt of advertisements is the first of the month preceding the desired month of publication. **All correspondence should be sent to the American Public Health Association, 1790 Broadway, New York 19, N. Y.**

POSITIONS AVAILABLE

Public Health Physicians—CD VD. Full time and half time. Wanted for immediate placement. Los Angeles County Health Department. Begins at $755 per month with yearly increases. California P and S M.D. certificate required at time of appointment. Apply Dr. Gilbert, Health Officer, County Health Department, 241 N. Figueroa, Los Angeles 12, Calif., acting for the Los Angeles County Civil Service Commission.

Director, Public Health Laboratories—Qualifications: Graduation from an accredited college or university with an earned doctor's degree (Ph.D., Sc.D., M.D., D.V.M.) in the field of laboratory sciences and three years' progressively responsible experience in a public health laboratory or similar agency. Salary range $9,000–$10,812. For applicant with M.D. or D.V.M. the salary range is $9,000–$11,604. Write Dalton Roberts, Chief, Administrative Services, Colorado Department of Public Health, 420 State Office Bldg., Denver, Colo.

Health Officers Needed—Must be citizens of the United States and eligible for Florida medical license. Experience and training for Health Officers III and IV. Salary depends upon amount of training and experience. Health Officer II as assistant director, salary range $690–$960, plus travel at 10 cents per mile. Health Officer III as director of small health unit, salary range $760–$1,050, plus travel at 10 cents per mile. Health Officer IV as director of medium sized health unit, salary range $840–$1,150, plus travel at 10 cents per mile. Write for details to Wilson T. Sowder, M.D., M.P.H., State Health Officer, P. O. Box 210, Jacksonville 1, Fla.

Director, Diagnostic and Research Tuberculosis Laboratory—Central Florida; physician or nonphysician microbiologist or clinical chemist. Part-time employment will be considered. Write Dr. Albert V. Hardy, Director, Bureau of Laboratories, State Board of Health, P. O. Box 210, Jacksonville, Fla.

Public Health Physician (Physician III)—Needed in Guam. Transportation to Guam and return for physician and family provided. Two-year contract subject to renewal. Furnished housing provided at low rental. Qualification: General practice with public health background in maternal, child health, and health education. Training and experience in tuberculosis control, mental health, and sanitation desirable but not essential. Salary $11,212.50 per year. Modern

facilities. Excellent clinic material. Job offers unusual and exceptional professional opportunities in public health field. Write via air mail to Peter Siguenza, Personnel Director, Government of Guam, Agana, Guam.

Internist or General Practitioner—To head general medical division of a county hospital. Western Michigan resort area. Regular working hours. Pleasant surroundings. Starting salary $10,000–$12,000 yearly. Generous raises for one who proves interest and ability. Social Security and county retirement plan. Living quarters for single person if desired. Apply to H. D. Ireland, M.D., Sunshine Hospital, 750 Fuller Ave., N.E., Grand Rapids, Mich.

Health Officer—Clark-Skamania Health District, Vancouver, Wash. Vacancy exists in well developed full-time health department at Vancouver, Wash., which is located directly across the Columbia River from Portland, Ore. Eligibility to practice medicine in the state of Washington, M.P.H. degree, plus experience are desired. Merit system plus retirement and Social Security. Salary range $10,908–$12,456 per annum. For further information write H. Grant Skinner, M.D., State Department of Health, Smith Tower, Seattle, Wash.

Public Health Physician (Epidemiologist)—Wisconsin State Board of Health, Madison. Plan, organize, and develop epidemiological studies and programs on a state level; participate and cooperate with state district health officers in field investigations. M.D., M.P.H. degrees, plus three years' experience in public health with emphasis upon epidemiology. Eligibility for a license to practice medicine in Wisconsin. Salary $11,592 with five annual increments to $14,412 per year, plus travel allowance. Civil service, vacation, sick leave, Social Security, and retirement benefits. Write Milton Feig, M.D., Director, Section on Preventable Diseases, State Board of Health, State Office Bldg., Madison 2, Wis.

Public Health Physician (District Health Officer)—State of Wisconsin. Two positions. One position includes 11 counties in north central part of state, headquarters Rhinelander. Second position includes eight counties in area bordering Lake Michigan, north of Milwaukee, headquarters Fond du Lac. Act as medical administrator of district office; district epidemiologist; plan, organize, supervise work of district office personnel consisting of public health engineer, public health nurse, sanitarians, nutritionist, dental hygienist. M.P.H. degree plus three years' experience in public health administration; eligibility for a license in Wisconsin. Salary $11,592–$14,412 per year, plus travel allowance. Civil service, vacation, sick leave, Social Security, retirement benefits. Write Carl N. Neupert, M.D., State Health Officer, 400 State Office Bldg., Madison 2, Wis.

Public Health Director—Full time, for a staff of 14. City of 45,000. Must be eligible for Wisconsin license. Salary $10,000. Car allowance, paid vacation, sick leave, and retirement benefits. For further information write Civil Service Commission, Sheboygan, Wis. Please give age.

Health Commissioner—City of 62,000. To direct and supervise all activities of the public health department and perform related work required. Graduation from recognized medical school, completion of approved internship, and one year medical practice; and either one year public health training in approved public health school or three years' experience in public health administration required. Extensive knowledge of theory, principles, and practices of general and preventive medicine, public health, and administration preferred. Civil service status, 40-hour week, vacation, sick leave, medical and hospitalization insurance for the entire family, retirement plan. Salary range $10,680–$11,880, plus $65 per month car allowance. Apply Civil Service Commission, 7525 W. Greenfield Ave., West Allis 14, Wis.

Health Officer—Eastern North Carolina's leading health department needs full-time director immediately. Air-conditioned, $80,000 health offices with all clinics fully equipped, dedicated 1956. Full-time branch clinic and three part-time branches in nearby towns. School health, rabies control, inservice and student nurse training programs. Crippled Children-Orthopedic, Rheumatic Heart Disease, Speech and Hearing Clinics plus Mental Health Clinic which serves 24 adjacent counties, all fully staffed. Department staff includes nine public health nurses, two supervising nurses, one health educator, three sanitarians, two dog wardens. Received North Carolina Public Health Association Merit Award 1954. Current budget $100,000 plus $34,000 mental health budget. Car furnished. Convention travel allowance. Merit System pay scale negotiated, depending on qualifications and experience. Liberal State Retirement benefits plus Social Security. Hospitalization plan. Six legal holidays plus vacation; 85 miles from ocean beaches and deep-sea fishing. Write Mr. B. Alton Gardner, Chairman, Board of Health, Box 477, Greenville, N. C.

Psychologist II—Doctorate in clinical psychology with year internship and two years' experience in practice of clinical psychology. Salary range $458–$575. Apply Career Service Authority, Room 178, City and County Bldg., Denver 2, Colo.

Medical Social Worker—Under general supervision of executive director to maintain a casework relationship with tuberculosis patients both at home and at state sanatorium. Graduate degree from a recognized school of social work. Salary $5,000; retirement plan

and Social Security. Apply: Hiram Nickerson, Executive Secretary Bangor-Brewer Tuberculosis and Health Association, 116 State St., Bangor, Me.

Open to citizens of the United States who possess the minimum qualifications:

Medical Social Work Adviser (Female)—$5,096–$6,136.

Medical Social Worker (Female)—$4,472–$5,356.

Public Health Nurse (Female)—$3,900–$4,680.

Nurse Anesthetist (Female)—$3,900–$4,680.

Medical Technologist I—$3,588–$4,264. Write Personnel Director, Municipal Building, Hartford, Conn.

Bacteriologist IV—State Board of Health, State Laboratory of Hygiene, Madison, Wis. Supervise development of voluntary system of approval of laboratories to perform premarital blood tests employing standard accepted laboratory procedures; evaluate work of hospital laboratories wishing approval to do tests; perform technical laboratory examinations; provide training for hospital laboratory technicians where indicated. Ph.D. degree and three years' experience in a public health diagnostic laboratory; candidates with an M.A. degree may substitute additional experience for the Ph.D. Salary $6,372–$7,692 per year, plus travel allowance. Civil service, vacation, sick leave, Social Security, retirement. Write W. D. Stovall, M.D., Director, State Laboratory of Hygiene, 437 Henry Mall, Madison 6, Wis.

Regional Sanitary Engineers—Alaska. Salary range $6,960–$9,240 depending upon qualifications and region to which assigned. If interested, please contact Amos J. Alter, Chief, Section of Sanitation and Engineering, Alaska Office Bldg., Juneau, Alaska.

Public Health Engineers—Air pollution, industrial hygiene, water and sewage control programs. Starting salary open depending on qualifications within range $420–$655 a month. Liberal travel allowance. State retirement and Social Security coverage.

Maternal and Child Health Director—$13,320 to start. Social Security and state retirement coverage. Liberal travel allowance. Write to Mr. A. T. Johnson, Personnel Director, Oregon State Board of Health, P. O. Box 231, Portland 7, Ore.

Sanitarian—for generalized program in environmental sanitation in a rapidly growing town in southern Connecticut. Master's degree in sanitation, recent graduate, no field experience necessary. Starting salary $4,100, plus $500 car allowance; yearly salary increase, paid vacation, 40-hour week, expenses to attend meetings, Social Security, liberal sick leave. Westport, Conn., is located on Long Island Sound, 45 miles from New York City, almost entirely residential, many varied recreational opportunities, excellent schools. Write Robert W. MacCalmont, M.D., Director, Department of Health, Jesup Road, Westport, Conn.

Public Health Physician—Challenging opportunity for qualified health officer to organize city-county Health Department, Reno, Nev. Mild, dry climate, many diversified recreational opportunities. Nevada medical license required. M.P.H. or certification by Board of Preventive Medicine desirable but not required. Beginning Salary $12,000 plus car allowance. For details write Daniel J. Hurley, M.D., State Health Department, Carson City, Nev.

County Health Commissioner—to direct public health programs in Genessee and Wyoming Counties in New York State; total population 84,000. Salary $12,500 (to start). Vacation, sick leave, and retirement benefits. Requirements are M.P.H. and one year of satisfactory full-time experience in general public health work. Address inquiries to Mr. Harold L. Peet, President, Wyoming County Board of Health, Pike, N. Y.

Public Health Physician—with training and experience in administration and epidemiology to serve as director of the Bureau of Preventable Diseases and Medical Services. Broad range of general administrative and clinical supervisory responsibilities include control of acute communicable diseases, tuberculosis, veneral diseases, and operation of medical clinic, cancer diagnostic clinic, mental health program, and a specialized municipal hospital. Annual operating budget of bureau is $800,000. Position under civil service. Vacation, sick leave, medical and hospital insurance, and liberal pension plan. Salary range $11,742–$12,410. Write to E. R. Krumbiegel, M.D., Commissioner of Health, Milwaukee Health Department, 200 E. Wells St., Milwaukee 2, Wis.

Director of Health—Administer public health program for progressive industrial city, 70,000 population. Requires physician eligible for membership in American Board of Preventive Medicine with M.P.H. and three years of public health experience. Maximum age 50. Must be United States citizen. Salary $12,814–$15,214. Obtain further information and brochure of city from Personnel Officer, 254 Municipal Bldg., Hamilton, Ohio.

Public Health Physicians—New Mexico Department of Public Health. Salary $9,000 and up; three years' professional experience required. Write Merit System Supervisor, Box 939, Santa Fe, N. Mex.

Public Health Director—for Wayne County, Mich. Salary $14,987–$16,307. Health department located 17 miles from downtown Detroit. Applicants must be licensed or eligi-

ble for licensure by the Michigan Board of Registration in Medicine, and have at least three years of full-time experience in a department approved by a state department of health, two years of which must have been in an administrative capacity. Contact Wayne County Civil Service Commission, 628 City-County Bldg., 400 Woodward Ave., Detroit 26, Mich.

Public Health Engineers (2)—Qualifications: master's degree with at least two years of experience in a state or local health department. Duties: one position consists of direction of activities of the Sanitation Division, one of three major divisions of the Bureau of Environmental Sanitation; supervision of 37 employees. One position consists of direction of activities of the Housing Division, one of three major divisions of the Bureau of Environmental Sanitation; supervision of 21 employees with anticipation of an increase in 1958. Civil service position. Vacation, sick leave, medical and hospital insurance, and liberal pension plan. Salary range $7,355–$7,687. Write to E. R. Krumbiegel, M.D., Commissioner of Health, Milwaukee Health Department, 200 E. Wells St., Milwaukee 2, Wis.

Public Health Educator II—Qualifications: master's degree in public health education with at least three years' experience in an official or voluntary health agency. Duties: direction of Division of Health Education, supervising four staff members, and promoting city-wide health education program. Salary range $5,790–$6,502. **Public Health Educator I**—Qualifications: college degree with at least one year of postgraduate study in public health education and at least one year's experience in a public or voluntary health agency. Duties: carrying out health education programs under the direction of Health Educator II. Salary range $5,091–$5,790. Civil service position. Vacation, sick leave, medical and hospital insurance, and liberal pension plan. Write to E. R. Krumbiegel, M.D., Commissioner of Health, Milwaukee Health Department, 200 E. Wells St., Milwaukee 2, Wis.

Dental Hygienist—with public health degree or experience to administer a school dental health program. Salary $3,990 with automatic increments to $4,740 in six years; 40-hour week, travel allowance for use of personal car, annual vacation and sick leave, state retirement and Social Security benefits. Apply Director of School Health, Arlington County School Board, 1426 N. Quincy St., Arlington, Va.

Biostatistician (Medical)—to be responsible for the statistical affairs of the Commission on Professional and Hospital Activities, Inc., under the general direction of the director of the Commission. The Commission is a new organization under national medical and hospital association sponsorship created to conduct research and provide services in collection, tabulation, and analysis of clinical data to aid in improvement of medical practices and hospital administration. Requirements: master's degree in biostatistics or equivalent plus two or more years' experience with medical, public health, or biological data. Starting salary $7,700–$12,000, depending qualifications. Write to Virgil N. Slee, M.D., Director, Commission on Professional and Hospital Activities, Inc., 211 First National Bldg., Ann Arbor, Mich.

St. Paul, Minnesota: **Public Health Engineers I and II**—Salary range $416–$506, $526–$641. Open to college graduates with a degree in civil, chemical, or mechanical engineering, including courses in bacteriology, sanitary chemistry, and related subjects. Study, survey, investigate, recommend in field of environmental sanitation. Apply to Minnesota Civil Service Department, 122 State Office Bldg., St. Paul, Minn.

Sanitarian—Wyoming State Department of Public Health. Position requires coverage of five counties in food and general sanitation activities. Qualifications: B.S. degree and two years' experience. Salary range $374–$540 per month depending on education and experience. Merit system, leased car plan, state retirement, Social Security. For additional information write Hale Laybourn, Administrative Officer, State Department of Public Health, State Office Bldg., Cheyenne, Wyo.

Sanitary Engineers II and III—Salary ranges $460–$575, $575–$725, respectively; two to four years' experience in public health or sanitary engineering; excellent retirement and fringe benefits; liberal leave policy and travel allowances. Write Personnel Officer, Florida State Board of Health, P. O. Box 210, Jacksonville 1, Fla.

New Jersey Department of Health—Adult and Occupational Health. Expanding activities in air pollution control, radiological health, and occupational health, present interesting and challenging positions: **Senior Industrial Hygienist (2)**—$5,700–$6,660; **Senior Public Health Engineer (2)**—$5,700–$6,660. Bureau of Adult and Occupational Health, State Department of Health, 17 W. State State., Trenton 8, N. J.

Director of Nurses—State Services for Crippled Children, State University of Iowa. Direction of public health nursing services for children with handicapping conditions. Official state agency administered by the State University and affiliated with state merit system. Baccalaureate degree, including or supplemented by public health nursing preparation and an advanced course in orthopedic or pediatric nursing required; experience in both a generalized public health program and in the specialized field of care of physically

handicapped required; one year of experience in supervisory, consultative, or administrative capacity necessary. Write John C. MacQueen, M.D., Director, State Services for Crippled Children, State University of Iowa, Iowa City, Iowa.

Public Health Analyst—City of Long Beach Health Department. Population 320,000. Graduation from a college or university of recognized standing with a major in public health, statistics, or the social sciences. Applicants must have had courses in statistics. Broad knowledge of the field of public health; thorough knowledge of statistics; research methods and survey technics; familiarity with sources of research data; ability to analyze, interpret, and present data objectively and effectively. Salary range $417–$510. Write to I. D. Litwack, M.D., Health Officer, 2655 Pine Ave., Long Beach 6, Calif.

Public Health Nursing (Educational Director Supervisor)—with a degree from an NLN approved school for public health nursing. Liberal benefits and personnel policies. Good salary. To be responsible for student affiliation program, staff education, and assist with supervision. Mrs. Louise Grizzard, Executive Director, Visiting Nurse Association, 424 W. Jefferson St., Louisville 2, Ky.

Staff positions open in County Health Department Training Center located at Bowling Green, Ky. **Training Nurse**—Master's degree in nursing; three years' public health nursing experience; two years' supervisory experience in a public health agency or two years of teaching or consultation experience. Salary $6,240. **Training Sanitarian**—Master's degree in public health sanitation and five years' experience in public health sanitary inspection work, including two years in a supervisory capacity. Salary $6,240. Write Merit System Supervisor, Kentucky State Department of Health, 620 S. Third St., Louisville, Ky.

Health Commissioner—full time, Columbus, Ohio, Health Department, serving a population of 450,000; budget $800,000; newly erected million-dollar building. Qualifications: M.D., eligible for licensure in the State of Ohio, postgraduate degree in public health, and at least three years' full-time administrative experience. Salary $12,000 up, depending on qualifications and experience. Apply: Mr. Charles A. Jones, President Protem, Columbus Board of Health, 181 S. Washington Blvd., Columbus, Ohio.

Speech and Hearing Therapist II—B.A. degree and two years' experience in speech and hearing therapy, including one year cleft palate. Eligibility for basic clinical certification by American Speech and Hearing Association. Salary $360–$460, with entrance salary depending on qualifications. Write State Board of Health, State Laboratory Bldg., Helena, Mont.

Occupational Therapist—Graduate, or with credits toward degree, to work in county hospital with chronic disease and tuberculosis patients. Salary range $3,744–$5,096. Pleasant living quarters available. Regular hours, Social Security, and retirement plan. Apply H. D. Ireland, M.D., Sunshine Hospital, 750 Fuller Ave., N.E., Grands Rapids, Mich.

Public Health Statistician—Salary range $460–$575. Requires master's degree in public health statistics and two years' experience in statistics, or an equivalent combination of training and experience. Write to Personnel Officer, Florida State Board of Health, P. O. Box 210, Jacksonville, Fla.

Chief Statistician (New York City Area)—Chief statistician to direct staff in research and planning activities in health and medical insurance. Age 30–55. Starting salary $9,000–$12,000. Write **Box ST-14,** Employment Service, APHA.

Executive Director—Recently reorganized visiting nurse association; generalized program, including diagnostic chest clinics, 10-nurse staff. Supervisory experience in a VNA and degree required. Salary open depending on qualifications. Write Mrs. William J. Wilson, President, Atlantic Visiting Nurse and Tuberculosis Association, 2332 Pacific Ave., Atlantic City, N. J.

A leading national voluntary health association has openings in various parts of the country in many categories—**Field Workers, Health Educators, Chapter Executives.** Master's degree in health education or related fields desirable but not essential. Some experience in public health, community organization, or administration of voluntary health agency required. Positions and salaries commensurate with background and prevailing local conditions. We want candidates who are interested in long-range career planning. Please send résumé to **Box C-31,** Employment Service, APHA.

Health Educator—Develop health education program in multicounty region in and around Seattle, Wash.; also work on statewide programs. Requirements: M.P.H., man or woman under 40, car. Salary between $4,800–$6,000, eight cents per mile and travel allowance, Social Security, medical coverage. Victor Schoch, Executive Director, Washington State Heart Association, 3121 Arcade Bldg., Seattle 1, Wash.

Opportunities in New York State Education Department—Civil Service examinations December 14 for 15 titles, including **Assistants,** $6,140–$7,490, in **School Health Education, School Lunch Administration,** and **School Nursing.** Open to any qualified

citizen of the United States. For details write before November 15 to Recruitment Unit, Box 3, State Department of Civil Service, 39 Columbia St., Albany, N. Y.

THE PENNSYLVANIA DEPARTMENT OF HEALTH announces vacancies in the positions listed below. All positions are under the merit system. Excellent promotional opportunities and an extensive training program provide the basis for real professional growth. Comparable education and training may be substituted for the stipulated minimum requirements. For applications or further information for any of the following Pennsylvania vacancies, please write to Mr. Andrew L. McCabe, Personnel Director, Pennsylvania Department of Health, Harrisburg, Pa. Applications should be postmarked not later than November 22, 1957.

Director, Employee Health Services, (Public Health Physician I)—$10,954–$13,979. For newly created position as director of a comprehensive employee health program. Requirements: eligibility or possessing certification of American Board of Internal Medicine or Occupational Health and eligibility for licensure in Pennsylvania.

Public Health Nurse Consultants, (Public Health Nurse III)—$6,090–$7,772 (salary subject to formal approval of Commonwealth Executive Board). Serves as a public health nursing consultant in the field of specialization to public health nurses and other personnel in a state-wide public health nursing program. Requirements: Three years of experience in a generalized public health nursing program or in the field of specialization, including one year in a supervisory capacity; B.S.; completion of an approved course in public health nursing, a course in teaching methods, and an advanced program of study in the field of specialization.

Medical Social Worker V—$6,716–$8,580. In the Division of Maternal and Child Health, directs a state-wide program of medical social work with special emphasis on services to children and mothers. Requirements: M.S. degree and six years of experience, four in medical social work and two in a supervisory or administrative capacity.

Medical Social Worker III—$5,529–$7,055. Serves as regional consultant to medical social workers, providing consultative services to professional staff members of state and other agencies. Requirements: M.S. degree and four years' experience, two in medical social work and one in a supervisory or administrative capacity.

Physical Therapist III—$5,803–$7,407. Develops and directs a state-wide program of physical therapeutic activities in the Division of Maternal and Child Health. Four years of professional experience as a physical therapist, including two years in a supervisory capacity; bachelor's degree with major course work in physical therapy; eligibility for license to practice physical therapy in Pennsylvania.

Physical Therapist II—$5,007–$6,390. Directs a program of physical therapeutic activities in an assigned region. Two years of professional experience as a physical therapist; bachelor's degree with major course work in physical therapy; eligibility for license to practice physical therapy in Pennsylvania.

Nutritionist I—$5,268–$6,716. Serves as a nutritionist in an assigned region, providing consultative and advisory nutritional services to state and related agencies. Requirements: One year experience as a nutritionist or in teaching nutrition; M.S. in nutrition or related field.

Public Health Nutritionist—Develop and conduct program in district area, including consultation to nurses, teachers, social workers, small hospitals, nursing homes, children's institution; training programs, community studies, and general nutrition education. Master's degree, internship, two years' hospital and community nutrition experience. Salary $5,712–$6,852, plus travel expense. Vacation, sick leave, Social Security, retirement. Dr. Amy L. Hunter, State Board of Health, Madison, Wis.

Immediate opening for position of **Director of Department of Occupational Therapy** in progressive psychiatric center associated with the Medical School of the University of Michigan. Physical setup includes four units for intensive treatment of children, adolescents, and adults, with occupational therapy and recreational therapy supervisors on each unit. Student affiliation center. Qualifications: B.S. degree, O.T.R.; minimum of four to six years in occupational therapy, with extensive experience in treating psychiatric patients, in training students, and in administration. Generous personnel benefits; salary open. Address communications to the Personnel Department, University Hospital, University of Michigan, Ann Arbor, Mich.

Qualified Public Health Nurse—Must be eligible for California certificate. Salary $376–$458; travel allowance for use of private car. Write to San Benito County Health Dept., Health Center Bldg., Hollister, Calif.

Director of Public Health Nursing—Position open, Santa Barbara County Health Department requests qualified applicants who meet eligibility requirements for director of public health nursing to submit letters of application. Salary range $455–$553. Car furnished. For further information write to Joseph T. Nardo, M.D., County Health Officer, P. O. Box 119, Santa Barbara, Calif.

Public Health Nursing Positions—Available in Health Department with the City of Flint, a rapidly growing city of 180,000 population. Beginning, intermediate, and administrative positions are available. Five-day, 40-hour week, with liberal retirement, vacation, and sick leave policies. Car furnished.

Beginning salary rates $3,952, $4,329, or $4,654, depending on experience and qualifications. Automatic increases and longevity rates for length of service. Apply Flint Civil Service Commission, City Hall, Flint, Mich.

Public Health Nursing Supervisor—Bachelor of science degree in public health nursing required as well as experience as a supervisor. M.P.H. degree desirable. Supervisor of a staff of nurses doing a generalized public health nursing program in Kalamazoo City-County Health Department serving a population of 150,000; located in a community with a university and two colleges midway between Chicago and Detroit with many cultural and recreational facilities. Five-day, 40-hour week with liberal sick leave and vacation benefits. Salary dependent upon trainng and experience. Apply to Director, Kalamazoo City-County Health Department, City Hall, Kalamazoo, Mich.

Supervising Public Health Nurse—for Southern California county. Starting salary $438; increases to $532. Graduation from school of nursing, [illegible] formal training in theory and practice [illegible] supervision, and at least two years' experience as public health nurse required. **Public Health Analyst**—Beginning salary $438; increases to $532. College graduation with at least 12 units in statistics and two years' technical research or statistical experience, including one year in public health field required. Graduate work may be substituted for one year's experience, and master's degree in biostatistics for both years. Retirement program, health insurance plan, paid vacations, and sick leave. Excellent nearby desert, mountain, and seashore recreational facilities. San Bernardino County Personnel Department, 236 Third St., San Bernardino, Calif.

Public Health Nurse—Generalized health program in city of 17,000 in central Wisconsin; must be qualified. Good salary, car allowance, liberal personnel policy. Write to Dr. C. J. Kiedrowski, President, Stevens Point Board of Health, 322 College Ave., Stevens Point, Wis.

Public Health Nurse—for a generalized public health program in Dutchess County, which is located about 75 miles north of New York City, a very desirable rural county. Salary $3,960–$5,050. Good personnel policies, car provided. If interested, write to Miss Margaret Wells, Supervising Nurse, Dutchess County Nursing Office, 22 Market St., Poughkeepsie, N. Y.

POSITIONS WANTED

On Box Numbers, Address APHA at 1790 Broadway, New York 19, N. Y.

Public Health Engineer—Wishes to locate in the Midwest or West. Seventeen years' experience. Now employed in supervisory capacity. Write **Box E-37,** Employment Service, APHA.

Administrative Position—in rural hospital-health center or with hospital services section of state health department by well qualified course graduate with excellent training in public health education and hospital administration. Write **Box C-36,** Employment Service, APHA.

Administrator, Nonmedical—Male, 29, master's degree in community organization, assistant executive secretary in Midwest health division responsible for committee activities in cancer, dental health, and clinic coordination. Budgeting, fund raising, health education, and health and welfare survey experience. Would consider health division or private agency. Write **Box C-37,** Employment Service, APHA.

B.S., M.Sc.—Male, married, experienced in many phases of public health: environmental sanitation, program planning, surveys, food and water sanitation, audiovisual aids, and research. Broad academic training in bacteriology, chemistry, public health administration, and business administration. Desire responsible administrative position in public health or research in related fields. Write **Box C-35,** Employment Service, APHA.

—PENNSYLVANIA DEPARTMENT OF HEALTH— PUBLIC HEALTH OPPORTUNITIES IN PENNSYLVANIA

All positions under the merit system; real opportunity for professional training and advancement; excellent retirement system; liberal sick leave, vacation, and holiday benefits. Comparable education and training may be substituted for the stipulated requirements for these positions.

DIRECTOR, DIVISION OF ADDICTIVE DISEASES—$12,075–$15,387

Public Health Physician II—in the division of Addictive Diseases to coordinate and administer a state-wide program in the care and prevention of alcoholic and narcotic addiction. Requirements: Five years of professional training and experience in the field of addictive diseases, including completion of the formal training requirements by the appropriate medical specialty board; eligibility for licensure in Pennsylvania.

DIRECTOR, DIVISION OF SANITARY ENGINEERING—$10,954–$13,979

Sanitary Engineer VI—in the Division of Sanitary Engineering to administer and direct the state-wide program of sanitary engineering. Requirements: Eight years of progressively responsible experience in sanitary engineering, including three years in a supervisory or an administrative position; M.S. in public health or public health engineering.

DIRECTOR, DIVISION OF ENVIRONMENTAL SAFETY—$8,580–$10,954

Sanitarian V—in the Division of Environmental Safety to develop, administer, and coordinate a state-wide environmental safety program. Requirements: Six years' experience in public health environmental sanitation work, including three years in a supervisory or administrative capacity; B.S. in engineering or the biological sciences and supplemented by graduate work in public health, public health engineering or sanitary sciences, or other fields closely related to sanitary engineering, to the level of a master's degree.

CHIEF, HEART AND METABOLIC DISEASES SECTION—$10,954–$13,979

Public Health Physican I, Heart and Metabolic Diseases—in the Division of Chronic Diseases, to develop and administer a state-wide public health program in the field of heart and metabolic diseases. Requirements: Four years of professional training and experience in the field of heart and metabolic diseases, including completion of the formal training requirements for certification by the appropriate medical specialty board; eligibility for licensure in Pennsylvania.

CHIEF, SCHOOL HEALTH SECTION—$10,954–$13,979

Public Health Physician I, Pediatrics—in the Division of Maternal and Child Health, to coordinate and administer a state-wide public health program for children of school age. Requirements: Four years of training and experience in pediatrics, including completion of the formal training requirements for certification by the American Board of Pediatrics; eligibility for licensure in Pennsylvania.

CHIEF, AIR POLLUTION CONTROL SECTION—$8,163–$10,432

Air Pollution Control Specialist IV—in the Division of Industrial Hygiene, to plan and direct a state-wide program for the control and elimination of air pollution health hazards. Requirements: Four years of technical experience in air pollution control work, including one year in a supervisory capacity; B.S. in civil, chemical, or mechanical engineering.

For further information or applications, please contact Dr. C. L. Wilbar, Jr., Deputy Secretary of Department of Health, or Mr. Ralph Tive, Executive Director, Civil Service Commission, Harrisburg, Pa.

FINAL DATE FOR FILING APPLICATIONS:
November 22, 1957

Commercial Advertisements

All communications on the following commercial advertisements should be sent to Burneice Larson, Medical Bureau, Suite 605, 900 North Michigan Avenue, Chicago 11, Ill.

OPPORTUNITIES AVAILABLE

(a) Public health physician to serve as associate director, well known foundation; some travel within limited area. (b) Epidemiologist; preventive medicine staff, foreign operations, leading industrial company; $14,000 plus $4,000 family maintenance; federal tax free. (c) Public health physicians to direct crippled children, maternal and child health departments; duties entirely administrative and clinical consultations; outside the United States. (d) Director, city-county health unit; resort city, Southwest; $15,000. (e) County health officer; California. (f) Student health physician; 4,000 students; Ohio. (g) Student health physician; 2,000 students; Texas. (h) Two public health educators; near Chicago; $4,500–$6,000. (i) Health education consultant and two public health engineers; statewide program; West. (j) Professor, public health nursing; master's required; duties include participation in administration of student and staff education program; East. (k) Director of nurses, city health department; $5,650–$6,010; Michigan. (l) Assistant chief; division of nursing, hospital facilities, state health department; car provided; $7,500 plus; Midwest. (m) School nurse; wealthy suburban Lake Michigan resort area; top salary. (n) Health counselor; fine hospital; 200 students; picturesque surroundings; $4,200, maintenance. (o) Health inspector experienced meat and dairy products inspection; foreign; $700.

OPPORTUNITIES WANTED

Sanitarian; experienced as chief of sanitation departments in the United States and foreign countries; available for opportunity involving administration and development of public health and sanitation programs.

WANTED—Opportunities for public health physicians, nurses, health educators, engineers, laboratory personnel. Candidates in all parts of the country, available for administrative, academic, and staff appointments. Negotiations strictly confidential.

News from the Field

WHO News

Food Additive General Principles

A joint FAO-WHO Expert Committee, meeting in Geneva in September, 1955, laid down some general principles governing the use of food additives. These principles are outlined in a first report of the Expert Committee. The use of a food additive is justified when it serves to maintain a food's nutritional quality, enhances keeping quality or stability thus reducing wastage, or when it is indispensable to processing. Additives should be prohibited when the aim is to disguise faulty processing and handling technics, or to deceive the customer, or when the additives decrease nutritive value, or when an equally beneficial effect could be obtained by another satisfactory process. Dr. William J. Darby, professor of biochemistry, and director, Division of Nutrition, Vanderbilt University School of Medicine, was the United States member of the group. The conference recommended convening an Expert Committee concerned with the technical and administrative aspects of the problem. General Principles Governing the Use of Food Additives, Columbia University Press, 2960 Broadway, New York 27, N. Y.; 30 cents.

Hospitals in the Health Picture

Two recent documents have come out of WHO that have something to say about the role of hospitals in the world of today. One is the First Report of the Expert Committee on Organization of Medical Care. It is titled "Role of Hospitals in Programmes of Community Health Protection."

The conclusion of the committee's report is that "the general hospital should be so planned as to provide medico-social institutions, public health administrations and individual practitioners with material support and with a means of achieving over-all co-ordination." The hospital is seen, not as an isolated institution, but fitting into the general health program with a need to gain the full support of the population.

Regionalization, with intermediate and local hospitals grouped around central hospitals, outpatient departments providing consultation services, and home medical care to reach the family unit are indicated as present needs, as are "day hospitals" and "night hostels."

The United States member of the Expert Committee meeting in Geneva in June, 1956, was E. M. Bluestone, M.D., consultant, Montefiore Hospital, New York City. The committee's report is available from the Columbia University Press, 2960 Broadway, New York 27.

The opening sentence of the second document observes that a hospital should not be built to last for more than 20 years and dramatizes its text that the hospital of today is "a changing organism due not only to the progress of medical sciences but also to new social needs to which the hospital must adjust its machinery."

This paper, "International Cooperation for Hospital Development," was presented at the 10th International Hospital Congress in Lisbon in June, 1957, by Dr. A. L. Bravo, chief of the Social and Occupational Health Section, WHO. It has been reproduced in mimeograph form by WHO from which it is presumably available.

The World Problem of Alcoholism

The July–August News Review of WHO entitled "World Health" is devoted largely to problems of alcohol. The main article by Professor E. M. Jellinek, WHO consultant on alcohol-

ism, is "The World and Its Bottle." This is a review of the variety in which the problems of alcoholism and excessive drinking manifest themselves in separate countries with particular details for France—a country that considers wine as a food and good for health.

Also described is a new animated cartoon film on alcohol entitled "To Your Health" which gives the simple scientific facts, without judgment, about alcohol, designed to encourage intelligent and objective consideration of the subject. This is being distributed in the United States by the Center for Mass Communication, 1125 Amsterdam Ave., New York 25, N. Y.

Combat Yaws in Ghana

A campaign to eliminate yaws is being carried on in the new state of Ghana with the cooperation of WHO and UNICEF. The former has made a survey of yaws in the country and is providing a three-man team to assist Ghana for three years. UNICEF is providing transport equipment and penicillin with which to treat an expected million persons by the end of 1958. A leprosy control campaign is also being aided by the two agencies.

Indiana Requires Driver Eye Check

The 1957 Legislature of Indiana enacted a law, which went into effect on July 1, that requires a periodic eye check of all licensed motor vehicle drivers in the state. All operators applying for a license or a regular two-year renewal must have their eyes corrected to 20/40 Snellen equivalent before the license is issued.

Fluoridation Programs Add a Million

With the fluoridation of Minneapolis public water supply, begun on August 6, about one-third of Minnesota's population is reported to have this protection. More than a million persons live in the 41 communities of the state that have fluoridation programs.

Improving Nursing Home Care

A joint Professional Liaison Committee of the American Medical Association's Council on Medical Service and the American Home Nursing Association is being revitalized. Its purpose is the improvement of care of the aging and chronically ill patients in nursing homes. The committee will serve as a medium for exchanging ideas, initiating action on improved standards of care, licensing and accreditation, education of nursing home administrators in new technics, closer working relations between nursing homes and physicians, and ways of financing improved facilities.

Symposium on Fluorides

The Institute of Industrial Health at the College of Medicine of the University of Cincinnati is conducting a three-day Symposium on Fluorides, December 9–11, 1957. Its purpose is to present the most recent information concerning the physiology of fluoride absorption to those working in the field of fluoride absorption. Discussions will include a brief review of what is known of fluoride metabolism and a considerable amount of hitherto unreported data.

The symposium is open to physicians and dentists in public health and industry and to other professional persons interested in the subject. Since attendance is limited early application is suggested. The registration fee is $50.

Further information and application blank from the Secretary, Institute of Industrial Health, Kettering Laboratory, Eden and Bethesda Avenues, Cincinnati 19, Ohio.

Pharmacists and Poison Control

At its 1957 convention the House of Delegates of the American Pharmaceutical Association approved a resolution affirming "its endorsement of the development of a coordinating program for poison control centers as proposed by the Public Health Service . . . and urging its members to participate . . . in the development of local poison control centers and offer their cooperation in serving their respective communities in the gathering and dissemination of information with respect to antidotes and treatment facilities for accidental poisoning."

The Public Health Service was notified of this resolution and the cooperation of the national and state pharmaceutical association secretaries in setting up and making effective local poison control centers.

Michigan's Program for the Aging

"Aging in the Modern World" is the title of a program developed by the Division of Gerontology of the University of Michigan. The study program is designed for persons 35 years or older either in self-organized groups or in groups organized by a variety of social, business, or labor organizations.

Materials include a 175-page "Handbook for Group Members," a 250-page "Book of Readings," a 68-page "Guide Book for Leaders," a recording describing the program, a 16 mm sound filmograph in color—"Aging—A Modern Social Achievement"—and two 16 mm sound kinescopes—"The New Prime of Life" and "The Many Lives of J.Q.P."

The three volumes costing a total of $3 may be obtained on 30-day approval. The recording costs $1.50. The filmograph and kinescopes may be either rented or purchased.

Wilma Donahue, chairman of the division in the University, and Clark Tibbitts, chairman of the Committee on Aging of the Department of Health, Education, and Welfare, have developed the material. A folder describing it and the material itself are available from the former, University of Michigan, Ann Arbor.

Septic Tank Design

The "Manual of Septic-Tank Practice," developed in cooperation with the Joint Committee on Rural Sanitation, has been published by the Public Health Service as document No. 526. Prepared for the guidance of health agencies, building officials, installers, and others, the manual is based to a great extent on research studies carried on at the Robert A. Taft Sanitary Engineering Center. The report is divided into three parts, one dealing with septic tanks for private residences, another for septic tank systems for institutions and recreational areas, and a third consisting of appendixes which present methods for performing the soil absorption test, a suggested ordinance, and various technical matters having to do with septic tank design. John I. Kiker, Jr., professor, Sanitary Engineering, University of Florida, was the representative of the American Public Health Association on the Joint Committee on Rural Sanitation. Gov. Ptg. Office, Washington 25, D. C., 35 cents.

Tuberculosis Training Fellowships

The American Trudeau Society, which is the medical section of the National Tuberculosis Association, offers postdoctoral fellowships for the training of clinicians, medical teachers, and scientific investigators in the field of tuberculosis and respiratory diseases. These awards make possible continuation of graduate study, oriented toward teaching or research, in an approved hospital or medical center.

Also available are a few fellowships at a higher level of training for specially qualified candidates with an M.D. degree, who are assured of a continued teaching or research appointment upon completion of training. Predoctoral fellowships are also available to graduate students working for an advanced degree other than an M.D.

Awards are made to United States citizens for work in this country. Applicants must have the approval of the department heads under whom they expect to work. Fellowships are awarded for one year, but may be renewed up to a total of four years. Awards, determined on the basis of individual circumstances, are paid directly to the fellow on a quarterly basis.

Further particulars from: Director of Medical Education, American Trudeau Society, in care of the Henry Phipps Institute, 7th and Lombard Sts., Philadelphia, 47, Pa.

New York Has New Health Building

The new home of the New York State Health Department in Albany was dedicated on June 27. The ceremonies presided over by State Health Commissioner Herman E. Hilleboe, M.D., and attended by over 1,000 persons, was a part of the program of the State Public Health Conference. The principal speakers at the dedication were Governor Averell Harriman and Surgeon General Leroy E. Burney.

Brought together under one roof in the new building are the approximately 600 employees of the department previously housed in eight different offices in various parts of the city. Adjoining is the department's Division of Laboratories and Research with more than 400 employees.

The modern design, "E" shaped, air conditioned building is constructed of face brick with limestone trim; a cafeteria, an auditorium for meetings of health groups, exhibits workshop, and photography laboratory are included. The offices of the State Water Pollution Control and State Air Pollution Control Boards, the Hospital Survey and Planning Commission, and the center for research and testing of human factors in motor vehicle accidents are located in the building.

Cardiovascular Disease Nursing

The third program in Cardiovascular Disease Nursing for graduate nurses will be offered jointly by the Schools of Public Health and of Nursing, University of Minnesota, January 6 to March 22, 1958. This program is designed to offer nursing leaders an opportunity to gain a better understanding of new developments and skills in the cardiovascular field and the application of these developments in their home job situations. Enrollment will be limited to approximately ten students.

For further information write School of Public Health, University of Minnesota, Minneapolis 14, Minn.

Audiology and Speech Fellowships

The American Hearing Society and the St. Paul Hearing Society jointly have established two fellowships in audiology and speech at the university. The new training program is geared to preparing qualified persons for work in local hearing societies.

The fellowships known as the Reine Humbird Myers Fellowships have been made possible by a bequest from the Myers Foundation of St. Paul. Each fellowship will pay $3,000 a year for two years.

Applicants may write to Crayton Walker, Executive Director, American Hearing Society, 1800 H St., N. W., Washington 6, D. C., or to Dr. Raymond Carhart, School of Speech, Northwestern University, Evanston, Ill.

Laboratory Methods in Tuberculosis

A course in Laboratory Methods in the Diagnosis of Tuberculosis will be offered at the Bacteriology Laboratory of the Communicable Disease Center, Chamblee, Ga., on January 20–31, 1958, with the cooperation of the Division of Special Health Services, Public Health Service. All grades of employed laboratory personnel who are approved by their state health officers, including laboratory directors and senior staff members, are eligible. The course includes practical laboratory training in all phases of tuberculosis bacteriology, including preparation of culture media, microscopy, cultural procedures, diagnostic use of animals, and testing of drug sensitivity. Those who attend this course will be offered a Student Extension Service for a period of a year following the course.

There are no tuition or laboratory fees. Reservations should be made well in advance. Application forms from the Laboratory Branch, Communicable Disease Center, P. O. Box, 185, Chamblee, Ga.

Medical Research Consultant Group

A consultant group to study medical research and education and their needs has been announced by Marion B. Folsom, Secretary of Health, Education, and Welfare. Stanhope Bayne-Jones, M.D., retired chief civilian adviser on research to the Army Surgeon General, heads the group, which has representation from education, research, and business. Secretary Folsom has suggested an interim report within a year and a final report six months later.

Three deans of medical schools are in the group, George Packer Berry, M.D., of Harvard; Lowell T. Coggeshall, M.D., University of Chicago; and Stafford L. Warren, M.D., University of California, Los Angeles. Others are Irvine H. Page, M.D., research director, Cleveland Clinic Foundation; James E. Webb, former director, Bureau of the Budget; Fred C. Cole, vice-president of Tulane University; and the following from business and industry: Thomas P. Varney, vice-president, Eli Lilly and Company; Samuel Lenher, a vice-president of E. I. du Pont de Nemours and Company; and Robert Swain, chief of research and development, American Cyanamid Company.

PERSONALS

Mary A. Alexander, R.N.,* assistant director, Nursing Service, Midwestern Area, American National Red Cross, has retired and is living at 908 Munson, Topeka, Kans.

Gordon C. Andrew is a construction inspector, Division of Hospitals, Connecticut State Department of Health.

Thurmond D. Boaz, Jr., M.D., M.P.H.,* former assistant director, Division of Local Health Services, Louisiana State Department of Health, is now instructor, Army Medical Service School, Fort Sam Houston, Tex.

Hugh M. Brown, M.D.,† former director, Caribou Health Unit, B. C., is now director, Athabasca Health Unit, Alberta, Canada.

Frances M. Campbell, former senior surgical worker, New York Hospital, is now medical social consultant, Division of Crippled Children, Connecticut State Department of Health.

Hugh J. Caven, M.D., once on the staff of the Institute of Living, Hartford, and recently in private practice, has been appointed director, Bureau of Mental Hygiene, Connecticut State Health Department.

Florence A. Cawley, former teaching dietitian, St. Luke's Hospital, New York City, is now nutrition consultant, Division of Local Health Administration, Connecticut State Department of Health.

Ruth E. Church, M.D.,* chief, Bureau of Communicable Disease Control, has been appointed deputy director in charge of the Division of Hospitals and Chronic Illness, Illinois State Department of Public Health, succeeding G. Howard Gowen, M.D.,* now with the International Cooperation Administration in Santiago, Chile.

Captain J. M. Coppoletta, MC, USN,† is Officer in Charge, U. S. Navy Preventive

* Fellow.
† Member.

Medicine Unit Number Five, Naval Hospital, San Diego, Calif.

AGNES DES MARAIS, M.P.H.,† is now a nurse officer, Public Health Service, assigned as public health nurse field coordinator, the Public Health Division, USOM/Iran.

HAROLD S. DIEHL, M.D.,* former dean, College of Medical Sciences, University of Minnesota, is now senior vice-president for research and medical affairs and deputy executive vice-president, American Cancer Society, New York City.

KATHARINE DODD, M.D.,† retiring as chairman, Department of Pediatrics, University of Arkansas, has been appointed distinguished professor of pediatrics, University of Louisville School of Medicine.

S. FALKLAND, M.D., D.P.H.,† has been transferred from the post of WHO public health adviser to the Government of Afghanistan to regional public health administrator, WHO Regional Office for the Western Pacific Region, Manila, Philippines.

LUCILE E. FRANZEN,† former public health nurse, Minnesota State Department of Health, is now school nurse, School Health Department, San Buena Ventura Elementary School, Ventura, Calif.

JULIA L. FREITAG, M.D., M.P.H., former apprentice epidemiologist, has been appointed senior public health physician, Bureau of Epidemiology and Communicable Disease Control, New York State Department of Health.

ESTHER C. GILBERTSON, R.N.,† former public health nurse consultant, Division of Health, Welfare, and Housing, Institute of Inter-American Affairs, now holds the same position in the tuberculosis program, Public Health Service, Washington, D. C.

GERALDINE GOURLEY,† former associate professor, Medical Social Work, University of North Carolina School of Public Health, is now medical social consultant, Dallas (Tex.) Regional Office, Children's Bureau.

G. HOWARD GOWEN, M.D.,* who recently joined the U. S. Operations Mission to Chile, received the 1956 Annual Award of the Illinois Division, American Cancer Society, for distinguished service in cancer control and a distinguished achievement award of the American Heart Association from the Illinois Heart Association for outstanding accomplishment in serving humanity through the heart cause.

COLONEL JOHN R. HALL, JR.,* chief, Occupational Health Branch, Preventive Medicine Division, U. S. Army Surgeon General's Office; LT. COLONEL EDWARD J. DEHNE,* Commanding Officer, U. S. Army Environmental Health Laboratory, Edgewood, Md.; and MAJOR GILBERT H. COLLINGS,* specialist in occupational medicine at the Laboratory are the three Army Medical Corps officers who were admitted to the Founders Group in the newly recognized medical specialty of occupational medicine before the group was closed to membership.

WILLIAM T. HALL, former medical social consultant, Division of Crippled Children, has been appointed psychiatric social worker, Division of Mental Health, Wyoming State Health Department.

ELMER HESS, M.D., of Erie, Pa., past-president, American Medical Association, has been appointed by President Eisenhower as chairman, National Advisory Committee to Selective Service on the Selection of Physicians, Dentists, and Allied Specialists, succeeding HOWARD RUSK, M.D.†

THOMAS R. HOOD, M.D.,* executive secretary, Kansas State Board of Health and state health officer, has received the award of the Kansas Association for Mental Health for "his outstanding work in the field of mental health."

JOHN E. HOTCH, M.D., former assistant professor, University of British Columbia, and research associate, Connaught Medical Research Laboratories, has been appointed assistant director, Laboratories for Virology, New York State Health Department.

ELMER M. JOHNSON, M.S.P.H.,† is assistant director, Bureau on Alcoholism, Health and Welfare Federation of Allegheny County, Pittsburgh, Pa.

ARTHUR KOHLER, former executive director, Merced County (Calif.) Tuberculosis and Health Association, and his wife, Gladys, are now, respectively, supervising operator and assistant operator, Mobile Chest X-ray Unit, Wyoming Department of Health.

GEORGE F. LULL, M.D.,† secretary-general manager, American Medical Association, in June, 1958, will take on the newly created job of assistant to the president, AMA, and will be succeeded as general manager by F. J. L. BLASINGAME, M.D. of Wharton, Tex.

WALTER A. LYON,* former assistant chief, Public Health Engineering Environmental Health Section, Philadelphia Department of Public Health, is now assistant director, Sanitary Engineering Division, Pennsylvania Department of Health.

PAUL B. MALLINCKRODT, D.D.S.,† director, Division of Dental Health and deputy state health officer, South Dakota State Health Department, has resigned to become clinical dentist and administrator, Laclede County (Mo.) Health Department.

* Fellow.
† Member.

REPRESENTATIVE SAMUEL K. MCCONNELL, JR., of Pennsylvania, has resigned his Senate seat to become executive director, United Cerebral Palsy Associations, Inc., New York City.

DWIGHT C. MONNIER, D.Ed.,* former chief health education adviser to the United States Operation Mission to Pakistan, has been appointed director, Division of Training and Research, Bureau Administration, Massachusetts State Health Department.

FELIX E. MOORE,* formerly chief of biometric research, National Heart Institute, Public Health Service, is now professor and chairman, Department of Public Health Statistics, School of Public Health, University of Michigan, Ann Arbor.

FRANK H. MORRISON, M.P.H.,† former executive assistant to public health officer, U. S. Operations Mission to Thailand, is now administrative methods consultant, Denver Regional Office, Children's Bureau.

RICHARD A. PASEWARK, Ph.D., former psychologist, State Psychiatric Hospital, Embreeville, Pa., has been appointed clinical psychologist, Division of Mental Health, Wyoming State Health Department.

M. ISABEL PATTERSON,* former resident lecturer, University of Michigan School of Public Health, is assistant professor of maternal and child nutrition, Boston University School of Nursing.

JOHN H. PETERS, M.D., former clinical associate professor of medicine, Emory University, has been appointed assistant medical director for research, American Heart Association, New York City.

ROBERT S. POOS, M.D.,† formerly Preventive Medical Unit No. 6 USN, Navy No. 128 FPO, San Francisco, is now medical director, Pacific Indemnity Company, Los Angeles.

CECIL R. REINSTEIN, M.D.,† former medical director, South Central District, Idaho Department of Public Health, is now director, Division of Preventive Medicine, Wyoming Department of Public Health.

ALFRED L. SCHERZER, Ed.D.,† is on leave from the Department of Sociology, Yale University, on a WHO assignment as health education adviser to the South Pacific Commission, with headquarters in Noumea, New Caledonia.

E. L. SEDERLIN, M.D.,* former director of local health services, Montana State Board of Health, is now director, Adams County (Ill.) Health Department, Quincy.

LEONARDO SINISTERRA, M.D.,† former research associate, Department of Nutrition, Harvard University School of Public Health, is now professor of clinical nutrition, University of the Valley, School of Medicine, Cali, Colombia.

DEAN F. SMILEY, M.D.,* former secretary, Association of American Medical Colleges, has been appointed director of the newly formed Educational Council for Foreign Medical Graduates, organized jointly by the AMA Council on Medical Education and Hospitals, the Association of American Medical Colleges, the Federation of State Boards of Medical Examiners, and the American Hospital Association.

JOHN O. SPAIN,* assistant director, Office of Vital Statistics, New York State Health Department, has retired.

DONALD B. THOMAS, M.D.,† former health commissioner of Wyoming and Genesee Counties, has been appointed deputy commissioner, Buffalo-Erie County (N.Y.) Health Department.

LOIS E. WAITE, R.N., M.A.,† former supervisor, Pittsburgh Department of Health, has been appointed mental health nurse consultant, Visiting Nurse Service of New York City.

VONDA A. WEBB,† former district nutritionist, Coahoma County (Miss.) Health Department, is now supervisor of nutrition services, Mississippi State Board of Health, Jackson.

JAMES D. WILLIAMS,† former chief sanitary engineer of the U. S. Operations Mission to Mexico, now has the same position in Guatemala.

DEATHS

FREDERICK R. BAUSCH, M.D.,† health officer, Allentown (Pa.) Health Department in April (Health Officers Section).

WALTER FOOTE,† sanitarian, Du Page County (Ill.) Health Department, on April 3 (Engineering and Sanitation Section).

ARTHUR GORDON,† president and consulting sanitary engineer, Gordon Sanitary Systems Corp., Chicago, Ill., in June (Engineering and Sanitation Section).

WALTER H. HARTUNG, M.D.,* Toledo (Ohio) health commissioner on June 1 (Medical Care Section).

WALTER C. HUMBERT, M.D., M.P.H.,* director, Pitt County (N.C.) Health Department, on August 22 at the age of 50 (Health Officers Section).

JAMES E. JOHNSON, M.D.,† medical director, Sebastian County Health Unit (Ark.), on November 13, 1956 (Health Officers Section).

CLARENCE H. KINNAMAN, M.D.,* epidemiolo-

* Fellow.
† Member.

gist for the Kansas State Board of Health for more than thirty years, on July 9 (Epidemiology Section).

THERESA U. LENTHALL, M.D.,† formerly with the Veterans Administration Hospital, Cleveland, Ohio (Medical Care Section).

CARROLL F. LEONARD, M.D., M.P.H.,† director, East Side Health District of St. Louis, Ill. (Health Officers Section).

J. E. LESTER, M.D.,† formerly commissioner of health, Cobb County (Ga.) Department of Public Health, on May 11 (Health Officers Section).

JOHN W. MCCLANE, SR., M.D.,† director, Baker-Nassau (Fla.) Health District, on May 3, 1956 (Health Officers Section).

MYRON S. MITCHELL, M.D.,† of Brooklyn, N. Y. (Medical Care Section).

FREDERICK G. NOVY, M.D., dean emeritus, University of Michigan Medical School, at the age of 92.

HENRY W. SCHOENLEIN,* director, Department of Bacteriology, Difco Laboratories, Detroit, Mich., on July 27 (Laboratory Section).

LUDWIC TELEKY, M.D.,† on August 20 at the age of 85 (Occupational Health Section).

MAX WEINER, D.M.D.,† supervising dentist, Bureau of Dentistry, New York City Department of Health, on February 7 (Dental Health Section).

CONFERENCES AND DATES

American Public Health Association, 85th Annual Meeting. Cleveland, Ohio. Headquarters: Public Auditorium, November 11–15.

State and Regional Public Health Meetings:

Connecticut Public Health Association. Fairfield State Hospital, Newtown. November 21.

Florida Public Health Association. Ft. Lauderdale. October 31–November 2.

Mississippi Public Health Association. Jackson. December 4–6.

Oregon Public Health Association. Medford. October 24–25.

Southern California Public Health Association. Huntington-Sheraton Hotel, Pasadena. December 6.

Tennessee Public Health Association. Maxwell House Hotel, Nashville. December 4–6.

Washington Public Health Association. Tacoma. October 20–22.

Meetings of Other Organizations Coming in October, November, and December:

American Academy of Pediatrics. Palmer House, Chicago, Ill. October 7–10.

American Association of Medical Record Librarians. Schroeder Hotel, Milwaukee, Wis. October 7–10.

American Dental Association. Miami, Fla. November 4–7.

American Dietetic Association. Miami, Fla. October 22–25.

American Heart Association. Hotel Sherman, Chicago, Ill. October 25–28.

American Occupational Therapy Association. Cleveland, Ohio. October 19–25.

American Public Welfare Association. Chicago, Ill. Edgewater Beach Hotel. December 4–7.

Association of American Medical Colleges. Haddon Hall, Atlantic City, N. J. October 20–23.

Association of State and Territorial Health Officers. Washington, D. C. November 1–9.

Industrial Hygiene Foundation. Mellon Institute, Pittsburgh, Pa. October 30–31.

Inter-American Conference on Rehabilitation. Guatemala City, Guatemala. November 8–12.

International Association of Milk and Food Sanitarians. Brown Hotel, Louisville, Ky. October 8–10.

Muscular Dystrophy Associations of America. New York, N. Y. October 8.

National Association for Mental Health, Inc. Atlantic City, N. J. November 21–23.

National Committee on the Aging—NSWA. New York, N. Y. December 10–11.

National Multiple Sclerosis Society. Hotel Sheraton-Jefferson, St. Louis, Mo. October 11–14.

National Rehabilitation Association. Minneapolis, Minn. October 2–4.

National Safety Council. Conrad Hilton Hotel, Chicago, Ill. October 21–25.

National Social Welfare Assembly. New York, N. Y. December 12–13.

National Society for Crippled Children and Adults. Palmer House, Chicago, Ill. October 31–November 2.

Pan American Medical Association—Tenth Inter-American Congress. Mexico City, Mexico. November 18–22.

Symposium on Antibiotics (sponsored by the Antibiotics Division, Food and Drug Administration). Washington, D. C. October 2–4.

United Cerebral Palsy Associations. St. Louis, Mo. November 22–24.

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* Fellow.
† Member.

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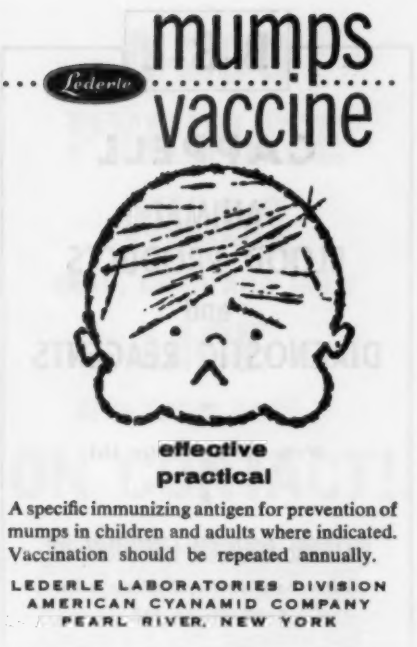
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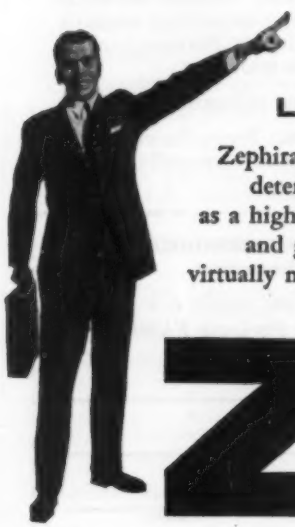

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